SCREENING SITE INSPECTION REPORT
FOR
CHEVRON USA INC CINCINNATI ASPHALT REF
NORTH BEND, OHIO
U.S. EPA ID: OHD083364679
SS ID: NONE
TDD: F05-8804-005
PAN: F0H0556SB

OCTOBER 3, 1991

This Draft Screening Site Inspection Report is considered confidential and pre-decisional in nature. Material and information contained within this report may not be released without the approval of the United States Environmental Protection Agency Region V Pre-Remedial Unit.

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1. INTRODUCTION

Ecology and Environment, Inc., Field Investigation Team (FIT) was tasked by the United States Environmental Protection Agency (U.S. EPA) to conduct a screening site inspection (SSI) of the Chevron USA Inc Cincinnati Asphalt Ref (Chevron Asphalt) site under contract number 68-01-7347.

The site was discovered on April 14, 1982, when U.S. EPA received a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) 103(c) form (U.S. EPA Form 8900-1) from Chevron U.S.A., Inc. (Chevron).

The site was evaluated in the form of a preliminary assessment (PA) that was submitted to U.S. EPA. The PA was prepared by Claudine F. Jones of the Ohio Environmental Protection Agency (OEPA), Southwest District Office, and is dated December 2, 1987 (U.S. EPA 1987).

FIT prepared an SSI work plan for the Chevron Asphalt site under technical directive document (TDD) F05-8804-005, issued on April 4, 1988. The SSI work plan was approved by U.S. EPA on August 20, 1990. The SSI of the Chevron Asphalt site was conducted on October 10 and 11, 1990, under amended TDD F05-8804-005, issued on August 24, 1990.

The FIT SSI included an interview with site representatives, a reconnaissance inspection of the site, and the collection of 10 soil/sediment samples and 1 production well sample.

The purposes of an SSI have been stated by U.S. EPA in a directive outlining Pre-Remedial Program strategies. The directive states:

> All sites will receive a screening SI to 1) collect additional data beyond the PA to enable a more refined preliminary HRS [Hazard Ranking System] score, 2) establish priorities among sites most likely to qualify for the NPL [National Priorities List], and 3) identify the most critical data requirements for the listing SI step. A screening SI will not have rigorous data quality objectives (DQOs). Based on the refined preliminary HRS score and other technical judgement factors, the site will then either be designated as NFRAP [no further remedial action planned], or carried forward as an NPL listing candidate. A listing SI will not automatically be done on these sites, however. First, they will go through a management evaluation to determine whether they can be addressed by another authority such as RCRA [Resource Conservation and Recovery Act].... Sites that are designated NFRAP or deferred to other statutes are not candidates for a listing SI.
>
> The listing SI will address all the data requirements of the revised HRS using field screening and NPL level DQOs. It may also provide needed data in a format to support remedial investigation work plan development. Only sites that appear to score high enough for listing and that have not been deferred to another authority will receive a listing SI. (U.S. EPA 1988)

U.S. EPA Region V has also instructed FIT to identify sites during the SSI that may require removal action to remediate an immediate human health or environmental threat.

2. SITE BACKGROUND

2.1 INTRODUCTION

This section presents information obtained from SSI work plan preparation, the site representative interview, and the reconnaissance inspection of the site.

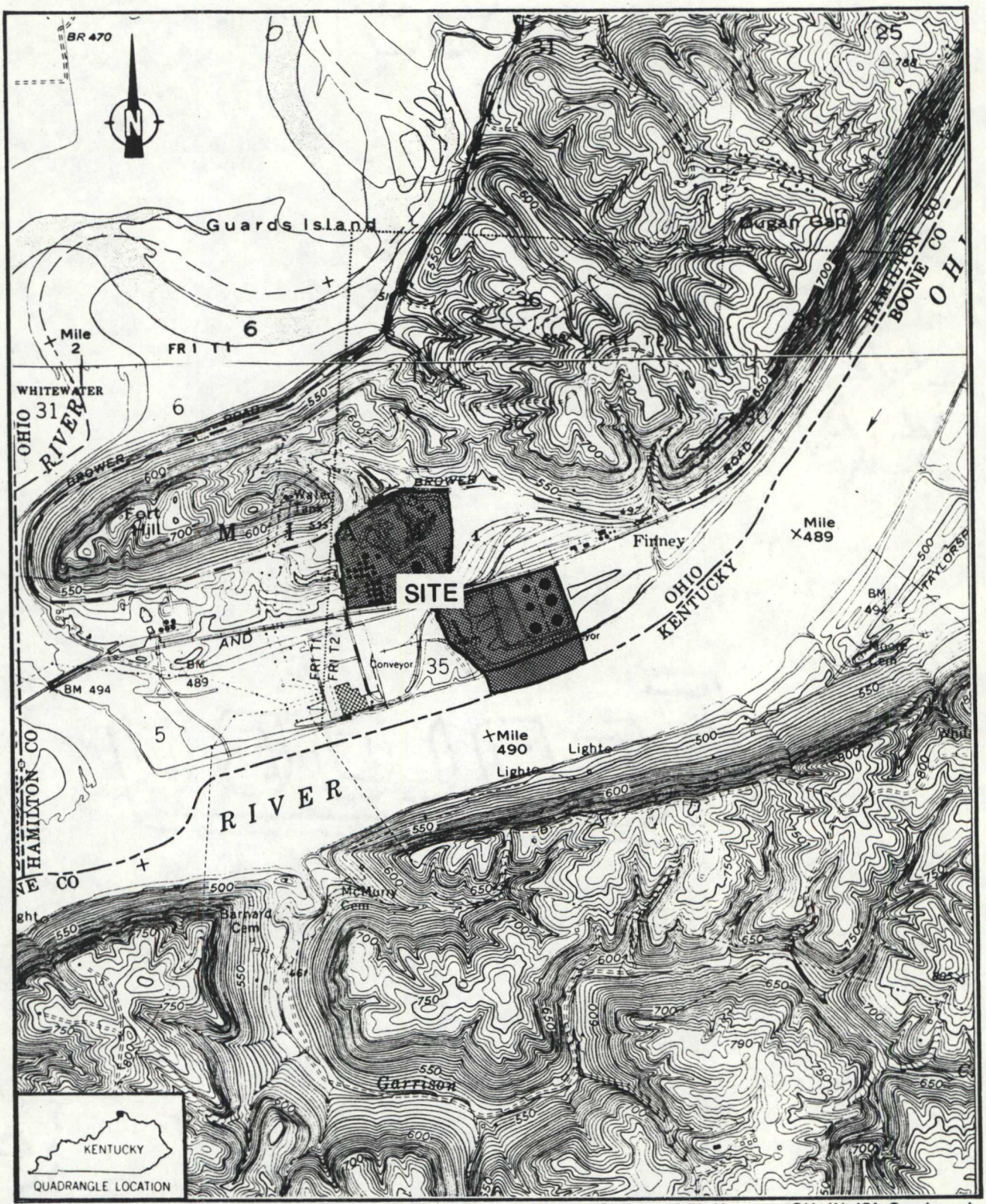
2.2 SITE DESCRIPTION

The Chevron Asphalt site is a 95-acre parcel of land, situated on a 133-acre property. The site, which is composed of two sections separated by the Baltimore and Ohio (B & O) Railroad tracks, contains an active asphalt processor and a storage facility. The site is located at 11001 Brower Road, in a mixed rural and residential area, approximately 4 miles southwest of North Bend, Hamilton County, Ohio (N1/2 sec. 35 and SW1/4 sec. 36, T.2, F.R.1) (see Figure 2-1 for site location). The site is approximately 1 mile east-northeast of the junction of the Ohio River and the Great Miami River.

A 4-mile radius map of the Chevron Asphalt site is provided in Appendix A.

2.3 SITE HISTORY

The Chevron Asphalt site primarily functions as an asphalt terminal. The site receives finished liquid asphalt (AC-20) from a Chevron refinery located near Pascagoula, Mississippi (Raatz 1985; Chevron [no date]). The site also accepts asphalt from producers other than Chevron subsidiaries (Kittle 1990). Operations at the Chevron Asphalt site include the processing and/or transferring of three asphalt products--



SOURCE: USGS, Lawrenceburg, KY-IN-OH Quadrangle, 7.5 Minute Series, 1961; Hooven, OH-IN-KY Quadrangle, 7.5 Minute Series, 1954, photorevised 1970.

SCALE

0 ½ 1 MILE

FIGURE 2-1 SITE LOCATION

paving asphalt, emulsion asphalt, and shingle asphalt (Baxter et al. 1990).

The Chevron Asphalt site was not developed prior to 1954. In July 1954, American Bitumuls and Asphalt Company (ABSC), which was a subsidiary of Standard Oil Company of California (SOCC), acquired the Chevron Asphalt site and established an asphalt refinery on-site. Between 1954 and 1970, the name of the subsidiary was changed from ABSC to Cincinnati Asphalt Terminal. In approximately 1970, SOCC changed its corporate name to Chevron U.S.A., Inc. (Chevron) (Baxter et al. 1990).

Asphalt, fuel oil, and naphtha were refined at the site (Raatz 1985). A lagoon was excavated on-site to serve as a gravity separator for oil and water and to contain any spills from an adjacent large storage tank. In the 1950s, Chevron constructed a new oil/water separator within the lagoon. Since then, Chevron has used the lagoon for gravity separation of oil and water only during periods when the facility requirements have exceeded the capacity of the new oil/water separator (Raatz 1985).

In 1965, refining processes were discontinued at the Chevron Asphalt site (Chevron [no date]; Raatz 1985; Halbleib 1982). In the 1970s, the Chevron Asphalt site served as the location for the district office of the Asphalt Division of Chevron (Baxter et al. 1990).

There are two operating production wells on-site. These wells were drilled by Moody's of Dayton, Inc. One or more test-type production wells were also installed on-site. These wells were closed after the drinking water quality was demonstrated to be unimproved over the drinking water quality of existing wells (Kittle 1990). In 1979, an ammonia/nitrate plume was detected in groundwater from the production wells, and the origin of the plume was believed to be from an off-site source (Hemker 1990). The use of production wells on-site for drinking water purposes was discontinued because of the ammonia/nitrate contamination. Bottled water was obtained and transported by truck from the city of Cleves, Ohio. From 1979 to 1989, 12 monitoring wells were installed in conjunction with 3 assessment studies (Geraghty & Miller Hydrocarbon Services [no date]). These monitoring wells are sampled quarterly (Baxter et al. 1990).

In 1982, Chevron began to phase out operational activities at the lagoon. Chevron modified the lagoon and used it only for the containment of storage tank spills. A new oil/water separator, consisting of a concrete tank with an oil/water separating device called a skimmer, was constructed south of the lagoon. Spent process water from the lagoon was routed through pipes to this oil/water separator. The oil recovered from the separator is recycled into the production processes (Kittle 1990). The continuously flowing effluent from the skimmer was channeled to a National Pollution Discharge Elimination System-permitted outfall (identified as outfall 001) that discharges into Dark Hollow Creek (Baxter et al. 1990).

Chevron petitioned U.S. EPA to have the sludge in the lagoon delisted as hazardous material when sampling conducted by Chevron proved that it was nonhazardous (Raatz 1985). However, U.S. EPA continued to consider the sludge in the lagoon as being hazardous and refused to delist it. Chevron withdrew the petition in 1985 and the sludge remains in the lagoon.

From 1980 to 1983, on-site spills of asphalt, gasoline, and #2 heating oil at the Chevron Asphalt site were documented (U.S. EPA 1987). The majority of the spills occurred during deliveries and transfers at the site (Baxter et al. 1990). Materials are delivered to the site via truck, rail, and barge (Chevron [no date]).

The Chevron Asphalt site has a storage tank capacity of nearly 1.2 million barrels. The site receives 700,000 to 800,000 barrels of hot asphalt a year at its barge terminal (Chevron [no date]). Site operations generate 1,000 barrels of waste per year, most of which is off-specification material. Normally, such material can be recycled into paving asphalt, emulsion asphalt, or shingle asphalt. Unrecoverable residue and office waste are transported by Rumpke, of Cincinnati, Ohio. Four waste shipments per year, with a total volume of 156 cubic yards, are sent to a landfill (Baxter et al. 1990).

According to FIT file information, no other regulatory or response actions have been taken at the Chevron Asphalt site.

3. SCREENING SITE INSPECTION PROCEDURES AND FIELD OBSERVATIONS

3.1 INTRODUCTION

This section outlines procedures and observations of the SSI of the Chevron Asphalt site. Individual subsections address the site representative interview, reconnaissance inspection, and sampling procedures. Rationales for specific FIT activities are also provided. The SSI was conducted in accordance with the U.S. EPA-approved work plan with the following exceptions. Sediment samples were not collected along the Ohio River because no appropriate sampling locations could be determined at the time of the SSI. Only one of the two production wells was sampled because both wells draw from approximately the same depth.

The U.S. EPA Potential Hazardous Waste Site Inspection Report (Form 2070-13) for the Chevron Asphalt site is provided in Appendix B.

3.2 SITE REPRESENTATIVE INTERVIEW

Dennis Palmer, FIT team leader, conducted an interview with Ralph Baxter, Operations Supervisor; L. D. Turley, Refinery Manager; Don Kittle, Maintenance Supervisor, all of Chevron, and Dan L. Hemker, Project Engineer of the Superfund Site Management Unit from the San Francisco office of Chevron. The interview was conducted on October 10, 1990, at 9:00 a.m. in a conference room on-site. Deborah Hallock of FIT was also present during the interview. The interview was conducted to gather information that would aid FIT in conducting SSI activities.

3.3 RECONNAISSANCE INSPECTION

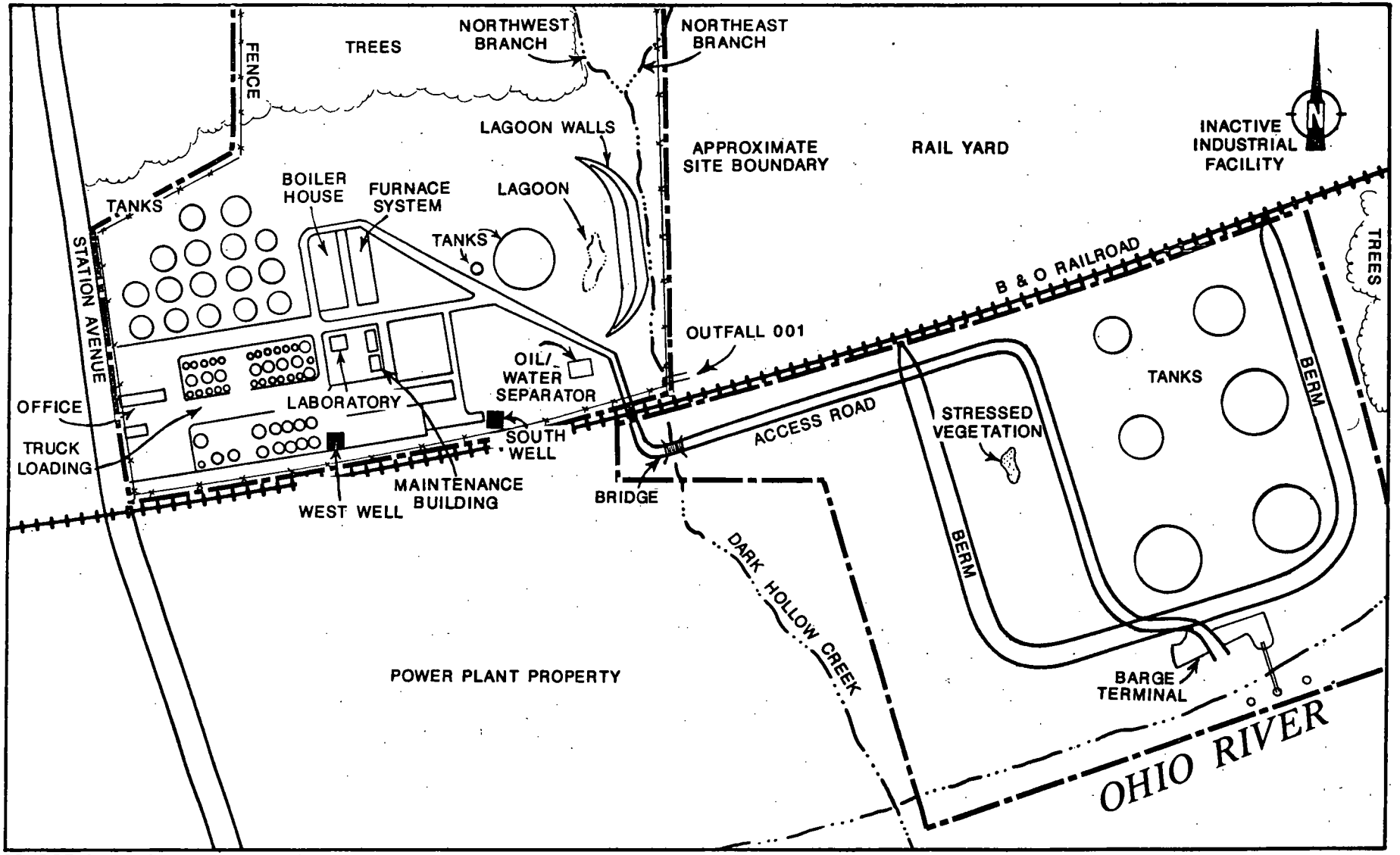
Following the site representative interview, FIT conducted a reconnaissance inspection of the Chevron Asphalt site and surrounding area in accordance with Ecology and Environment, Inc. (E & E), health and safety guidelines. The reconnaissance inspection began at 10:40 a.m. and included a walk-through of the site to determine appropriate health and safety requirements for conducting on-site activities and to make observations to aid in characterizing the site. FIT also determined sampling locations during the reconnaissance inspection. FIT was accompanied by Kittle and Hemker during the reconnaissance inspection.

Reconnaissance Inspection Observations. The Chevron Asphalt site consists of two sections, a northern section and a southern section, separated by B & O Railroad tracks (see Figure 3-1 for site features). The northern section is bordered on the north by Brower Road and a county park, on the east by a rail yard and an inactive industrial facility, on the south by the railroad tracks and a power plant, and on the west by Station Avenue. The southern section is bordered on the north by the railroad tracks, the rail yard, and the inactive industrial facility, on the east by trees, on the south by the Ohio River, and on the west by the power plant.

Dark Hollow Creek flows through the northern section and part of the southern section of the site. The creek begins north of the site as two branches in the county park north of Brower Road and then merges within the site boundaries. The branches are identified as the northwest and northeast branches. The creek exits the site through the northwest corner of the southern section and flows through the power plant property before entering the Ohio River.

An access road connects the northern and southern sections with a bridge over Dark Hollow Creek. The access road runs through the middle of the southern section to a barge terminal on the Ohio River.

The northern section of the site contains the facility's offices, the boiler house and furnace system, and the majority of the aboveground storage tanks at the site. The northern section measures 48 acres and contains 12 buildings (Baxter et al. 1990). The southern section contains 6 large storage tanks partially surrounded by a berm and an area



SOURCE: Drawn from map by Harbeston, 11-17-88.

SCALE

0 250 500 750 1,000 1,250 FEET

FIGURE 3-1 SITE FEATURES

of stressed vegetation. No buildings are located in this section, which consists of 47 acres (Hemker 1990).

Active operations at the Chevron Asphalt site are conducted in the south-central portion of the northern section. The southern area of this portion contains a loading facility for trucks, an administrative office building, a maintenance building, and a laboratory. A boiler house and a furnace system are north of this area. Numerous overhead pipes cross the access road, and various types and sizes of storage tanks are located west and southwest of the boiler house. The two operating production wells are located just north of the railroad tracks. One of the wells is identified as the south well (Kittle 1990). The other well is identified as the west well (Hemker 1990; Halbleib 1982).

A large storage tank and a lagoon are located in the east-central part of the northern section. The lagoon is approximately 300 feet long and 100 feet wide and is of unknown depth. The lagoon is located between the large storage tank to the west and crescent-shaped lagoon walls to the east. FIT site-entry equipment (the OVA) detected readings that deviated from background near the lagoon.

An outfall (outfall 001) is located on the eastern side of the northern section. This outfall leads from the currently used oil/water separator located south of the lagoon to Dark Hollow Creek, into which it discharges. The flow from outfall 001 is from an open culvert that is connected to the oil/water separator.

The northern section of the site appears to be completely fenced. A woodland is located in the northern portion of this section.

Six large storage tanks in the southern section of the site are located east of the access road. These tanks are surrounded by a berm on the east, south, and west sides, and by a railroad grade on the north side. An area of stressed vegetation lies between the access road and the west side of the berm. Just south of the railroad tracks are pipelines that connect the six storage tanks to the processing facilities in the northern section.

The barge terminal is located in the southern portion of the southern section of the site, on the Ohio River. The terminal is used during the spring and summer for asphalt transfer (Kittle 1990).

FIT photographs from the SSI of the Chevron Asphalt site are provided in Appendix C.

3.4 SAMPLING PROCEDURES

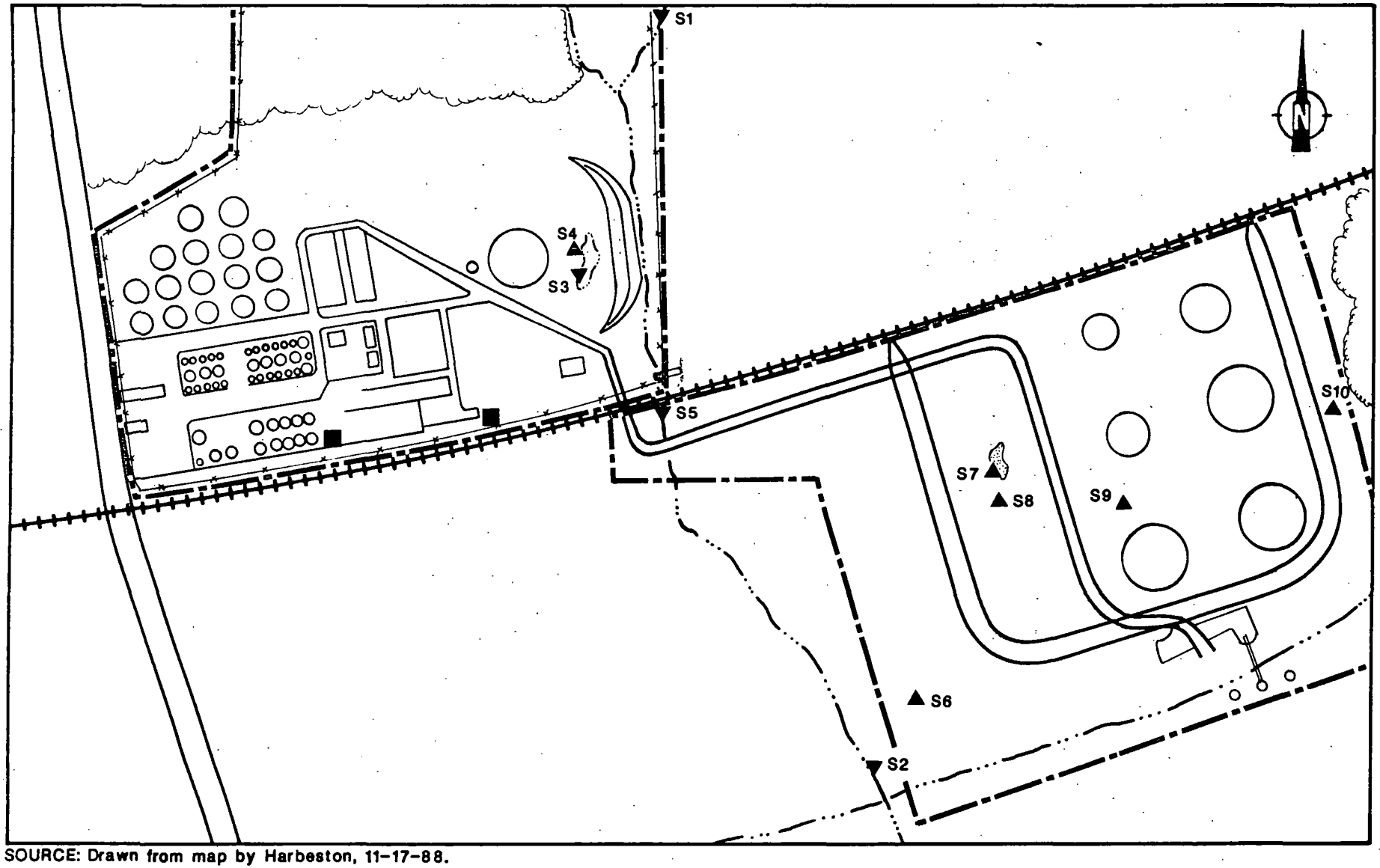
Samples were collected by FIT at locations selected during the reconnaissance inspection to determine whether U.S. EPA Target Compound List (TCL) compounds or Target Analyte List (TAL) analytes were present at the site. The TCL and TAL are included with corresponding quantitation/detection limits in Appendix D.

On October 10, 1990, FIT collected 10 soil/sediment samples, including a potential background sample, and 1 production well sample. Portions of on-site soil/sediment and production well samples were offered to site representatives by FIT. Two soil sample portions and a production well sample portion were accepted by representatives of the Chevron Asphalt site.

Soil/Sediment Sampling Procedures. Sediment sample S1 was collected off-site from the northeast branch of Dark Hollow Creek, approximately 50 feet east of the northern section's fence (see Figure 3-2 for soil/sediment sampling locations). Sample S1 was collected as an upstream sample to determine the representative chemical content of the creek sediment upstream of the site. Sediment sample S2 was collected off-site from the east bank of Dark Hollow Creek approximately 150 feet north of the junction of the creek and the Ohio River. Sample S2 was collected to determine whether TCL compounds or TAL analytes were migrating from the site to the creek.

Sediment sample S3 was collected from the edge of the lagoon in the northern section of the site. Surface soil sample S4 was collected approximately 10 feet northwest of sampling location S3. Samples S3 and S4 were collected to determine whether TCL compounds and TAL analytes were present in the soil or sediment in the lagoon area.

Sediment sample S5 was collected from the east bank of Dark Hollow Creek approximately 15 feet south of the bridge that crosses the creek. Sample S5 was collected to determine whether TCL compounds or TAL analytes were migrating from the site to the creek. Surface soil sample S6 was collected halfway between sampling location S2 and the southwest corner of the berm. Sample S6 was collected to determine whether TCL



SOURCE: Drawn from map by Harbeston, 11-17-88.

SCALE

0 250 500 750 1,000 1,250 FEET

LEGEND

▲SOIL ▼SEDIMENT

FIGURE 3-2 SOIL/SEDIMENT SAMPLING LOCATIONS

compounds or TAL analytes may have migrated overland toward the creek. Surface soil sample S7 was collected from the area of stressed vegetation within the berm. Subsurface soil sample S8 was collected from within the berm with a posthole digger and hand auger at a depth of 2 to 4 feet. Water was encountered at a depth of 1 1/2 feet and the soil was clay-like at depth. Samples S7 and S8 were collected to determine whether TCL compounds or TAL analytes were present in the bermed area.

Surface soil sample S9 was collected approximately 300 feet east of sampling location S8, from a vegetated area near the storage tanks. Sample S9 was collected to determine whether any spills from the tanks or other on-site operations have occurred in the area.

Surface soil sample S10 was collected as a potential background sample from a grassy area east of the bermed area. Sample S10 was collected to determine the representative chemical content of the soil in the area of the site.

All surface soil/sediment samples were collected with garden trowels. The sample portions collected for volatile organic analysis were transferred directly to sample bottles. The remaining sample portions were placed into a stainless steel bowl, mixed, and then transferred to the appropriate sample bottles, using a stainless steel spoon or a hand trowel (E & E 1987).

Standard E & E decontamination procedures were adhered to during the collection of all soil/sediment samples. The procedures included the scrubbing of all equipment (e.g., trowels, spoons, bowls, posthole digger, and hand auger) with a solution of detergent (Alconox) and distilled water, and triple-rinsing the equipment with distilled water before the collection of each sample (E & E 1987). All soil/sediment samples were packaged and shipped in accordance with U.S. EPA-required procedures.

As directed by U.S. EPA, all soil/sediment samples were analyzed using the U.S. EPA Contract Laboratory Program (CLP).

Production Well Sampling Procedures. Production well sample PW1 was collected on-site from the south well (see Figure 3-3 for monitoring and production well sampling locations). The south well is 110 feet deep.

All production well samples were obtained from an outlet that bypassed water treatment systems and storage tanks. Water was allowed to discharge from the outlet for 20 minutes before samples were collected to ensure that the sample source had been purged of standing water (E & E 1987). In accordance with U.S. EPA quality assurance/ quality control requirements, a duplicate production well sample and a field blank sample were collected. The duplicate sample was collected at location PW1. The field blank sample was prepared from distilled water.

As directed by U.S. EPA, all production well samples were analyzed using the U.S. EPA CLP.

4. ANALYTICAL RESULTS

This section presents results of the chemical analysis of soil/sediment and production well samples collected by FIT during the SSI of the Chevron Asphalt site. All samples were analyzed for volatile organics, semivolatile organics, pesticides/polychlorinated biphenyls (PCBs), metals, and cyanide. Complete chemical analysis results of FIT-collected soil/sediment and production well samples are provided in Tables 4-1 and 4-2. In addition, significant tentatively identified compounds (TICs) detected in the analysis of FIT-collected samples are also provided in Table 4-1.

Quantitation/detection limits used in the analysis of FIT-collected samples are provided in Appendix D.

The analytical data from the chemical analysis of FIT-collected samples for this SSI have been reviewed under the direction of U.S. EPA for validity; the review has been approved by U.S. EPA. The analytical data have also been reviewed by FIT for usability. Any additions, deletions, or changes resulting from review of the data have been incorporated in the chemical analysis results tables presented in this section.

Table 4-1
RESULTS OF CHEMICAL ANALYSIS OF
FIT-COLLECTED SOIL/SEDIMENT SAMPLES FOR THE CHEVRON ASPHALT SITE SSI

Sample Collection Information and Parameters	Sample Number S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
Date	10/10/90	10/10/90	10/10/90	10/10/90	10/10/90	10/10/90	10/10/90	10/10/90	10/10/90	10/10/90
Time	1300	1200	1300	1315	1415	1400	1400	1430	1530	1500
CLP Organic Traffic Report Number	EKW69	EKW70	EKW71	EKW72	EKW73	EKW74	EKW75	EKW76	EKW77	EKW78
CLP Inorganic Traffic Report Number	MEKD69	MEKD70	MEKD71	MEKD72	MEKD73	MEKD74	MEKD75	MEKD76	MEKD77	MEKD78
Compound Detected (values in ug/kg)										
Volatile Organics										
methylene chloride	59J	15J	29J	--	--	54J	--	--	17	--
acetone	--	--	120J	--	--	--	--	--	--	--
chloroform	3J	--	--	--	--	--	--	--	--	--
1,2-dichloroethane	2J	--	--	--	--	--	--	--	--	--
bromodichloromethane	5J	--	--	--	--	--	--	--	--	--
toluene	--	--	--	--	--	--	27J	--	50	--
chlorobenzene	2J	--	--	--	--	--	--	--	--	--
xylenes (total)	--	--	--	--	--	20J	--	--	7	--
Semivolatile Organics†										
phenanthrene	230J	530J	100J	--	230J	390J	220J	--	R	--
anthracene	--	160J	--	--	170J	--	--	--	R	--
di-n-butylphthalate	87J	--	96J	--	--	110J	89J	140J	R	92J
fluoranthene	390J	740J	280J	210J	410J	480J	810J	--	R	--
pyrene	350J	590J	270J	190J	410J	410J	910J	--	R	--
benzo[a]anthracene	180J	340J	140J	120J	200J	280J	470J	--	R	--
chrysene	260J	500J	180J	140J	440J	390J	630J	--	R	--
bis(2-ethylhexyl)phthalate	--	--	--	--	--	--	--	--	R	--
benzo[b]fluoranthene	170J	520J	180J	130J	360J	310J	530J	--	R	--
benzo[k]fluoranthene	90J	390J	110J	120J	190J	250J	290J	--	R	--
benzo[a]pyrene	150J	430J	170J	140J	240J	240J	470J	--	R	--
indeno[1,2,3-cd]pyrene	--	260J	120J	--	140J	110J	210J	--	R	--
benzo[g,h,i]perylene	--	230J	130J	--	120J	--	250J	--	R	--
Pesticides/PCBs†										
TICs††										
dodecane, 2-methyl-6-propyl (55045-08-4)	--	--	--	--	3,000J	--	--	--	R	--
undecane, 3,6-dimethyl (17301-28-9)	--	--	--	--	2,000J	--	--	--	R	--
hexacosane (630-01-3)	--	--	--	--	3,000J	--	--	--	R	--

Table 4-1 (Cont.)

Sample Collection Information and Parameters	Sample Number S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
dodecane, 2,6,11-trimethyl (31295-56-4)	--	--	--	--	2,000J	--	--	--	R	--
tetratetracontane (7098-22-8)	--	--	--	--	1,000J	--	--	--	R	--
Analyte Detected (values in mg/kg)										
aluminum	3,610	10,600	5,690	7,910	6,380	12,500	12,300	13,200	9,220	11,500
antimony	--	--	--	20.5NJ	25.3NJ	22.8NJ	--	32.7NJ	--	22.3NJ
arsenic	5.9NJ	10.7NJ	8.6NJ	15.4NJ	7NJ	12.3NJ	10.4NJ	9.6NJ	5.9NJ	7NJ
barium	35.1B	77.7	57.5B	67.5	52.1B	206	116	194	145	177
beryllium	0.34B	0.85B	0.55B	0.6B	0.52B	1.5	1B	1.4	0.97B	1.1B
cadmium	--	--	0.82BNJ	1.6NJ	1BNJ	1.8NJ	--	0.63BNJ	--	0.92BNJ
calcium	46,200	16,800	1,460B	3,070	11,100	2,940	1,510	2,010	2,340	1,850
chromium	11.8	26.5	35.8	32.5	20	46.4	19.7	22.1	15.6	21.9
cobalt	9.6B	14.8B	6.9B	9.1B	9.2B	27.2	15.5	17.2	13.4	15.1
copper	146N*J	48N*J	36.4N*J	35.2N*J	29.4N*J	50.5N*J	783N*J	29.3N*J	21.6N*J	26.5N*J
iron	17,200	26,100	15,300	23,000	17,500	33,000	29,200	37,800	21,800	26,300
lead	39.7	44.8WJ	33.7	34WJ	29.6	74.7	22.6WJ	30.4WJ	22.1WJ	30.6WJ
magnesium	8,260	5,390	1,160B	2,150	3,620	2,690	2,460	2,740	2,260	2,410
manganese	595	792	287	407	458	1,400	941	1,150	923	1,080
mercury	--	--	0.2	--	0.19	0.29	--	--	--	--
nickel	14.8J	33.3	17.3J	21.9	20.8	54.9	24.5	32	23.7	29.8
potassium	554B	1,340B	885B	1,070B	913B	1,400	1,190B	1,490	1,000B	1,410
selenium	--	--	--	--	--	0.57B	--	--	--	--
silver	--	1.4B	--	--	--	1.8B	1.1B	1.3B	0.87B	0.75B
sodium	230B	367B	183B	126B	186B	124B	123B	199B	127B	113B
thallium	--	--	--	--	--	0.86BWJ	--	--	--	--
vanadium	11.6B	24	23.3	23.3	16.6	25.4	27.3	29.7	20.9	24.3
zinc	79.3	151	87.2	88.2	99.2	313	70.8	82.7	63.3	103

-- Not detected.

† The semivolatile organic, pesticide/PCB, and TIC fractions of sample S9 have been qualified R.

†† TIC Chemical Abstracts Service (CAS) numbers, if available, are provided in parentheses.

Table 4-1 (Cont.)

COMPOUND QUALIFIERS	DEFINITION	INTERPRETATION
J	Indicates an estimated value.	Compound value may be semiquantitative.
R	Results are unusable due to a major violation of QC protocol.	Compound value is not usable.
X	Cannot be confirmed by CLP protocols.	Compound may or may not be present.

ANALYTE QUALIFIERS	DEFINITION	INTERPRETATION
N	Spike recoveries outside QC protocols, which indicates a possible matrix problem. Data may be biased high or low. See spike results and laboratory narrative.	Value may be quantitative or semiquantitative.
*	Duplicate value outside QC protocols which indicates a possible matrix problem.	Value may be quantitative or semiquantitative.
B	Value is real, but is above instrument DL and below CRDL.	Value may be quantitative or semiquantitative.
J	Value is above CRDL and is an estimated value because of a QC protocol.	Value may be semiquantitative.
M	Duplicate injection precision not met.	Value may be semiquantitative.
W	Post-digestion spike for furnace AA analysis is out of control limits (35-115%), while sample absorbance is <50% of spike absorbance.	Value may be semiquantitative.
R	Results are unusable due to a major violation of QC protocols.	Analyte value is not usable.

Table 4-2
RESULTS OF CHEMICAL ANALYSIS OF
FIT-COLLECTED PRODUCTION WELL SAMPLES FOR THE CHEVRON ASPHALT SITE SSI

Sample Collection Information and Parameters	Sample Number PW1	Duplicate	Blank
Date	10/10/90	10/10/90	10/10/90
Time	1530	1530	1510
CLP Organic Traffic Report Number	EKW65	EKW67	EKW68
CLP Inorganic Traffic Report Number	MEKD65	MEKD67	MEKD68
Temperature (°C)	11	11	11
Specific Conductivity (μmhos/cm)	4,100	4,100	5.5
pH	NA	NA	NA
Compound Detected (values in μg/L)			
Volatile Organics			
methylene chloride	4J	4J	4J
chloroform	—	—	0.9J
2-butanone (MEK)	R	R	R
Analyte Detected (values in μg/L)			
aluminum	55BJ	63.3BJ	58.5B
barium	104B	104B	—
calcium	141,000	141,000	196BJ
cobalt	7.6B	5.2B	—
iron	176J	296J	—
lead	—	2.1BNWJ	5.4N
magnesium	37,500	37,300	37.4B
manganese	22.1	20.9	—
potassium	5,390	5,620	—

Table 4-2 (Cont.)

Sample Collection Information and Parameters	Sample Number PW1	Duplicate	Blank
sodium	29,800EJ	30,000EJ	652BEJ
zinc	7.7B	15.3B	--

NA Not available.
-- Not detected.

Table 4-2 (Cont.)

COMPOUND QUALIFIERS	DEFINITION	INTERPRETATION
J	Indicates an estimated value.	Compound value may be semiquantitative.
R	Results are unusable due to a major violation of QC protocol.	Compound value is not usable.

ANALYTE QUALIFIERS	DEFINITION	INTERPRETATION
E	Estimated or not reported due to interference. See laboratory narrative.	Analyte or element was not detected, or value may be semiquantitative.
N	Spike recoveries outside QC protocols, which indicates a possible matrix problem. Data may be biased high or low. See spike results and laboratory narrative.	Value may be quantitative or semi-quantitative.
B	Value is real, but is above instrument DL and below CRDL.	Value may be quantitative or semi-quantitative.
J	Value is above CRDL and is an estimated value because of a QC protocol.	Value may be semiquantitative.
W	Post-digestion spike for furnace AA analysis is out of control limits (35-115%), while sample absorbance is <50% of spike absorbance.	Value may be semiquantitative.

5. DISCUSSION OF MIGRATION PATHWAYS

5.1 INTRODUCTION

This section presents discussions of data and information pertaining to potential migration pathways and targets of TCL compounds and TAL analytes that are possibly attributable to the Chevron Asphalt site.

The five migration pathways of concern discussed are groundwater, surface water, air, fire and explosion, and direct contact.

5.2 GROUNDWATER

FIT collected one groundwater sample. The sample, PW1, was collected from an on-site production well. TCL compounds and TAL analytes were detected at low levels in sample PW1.

TCL compounds and TAL analytes were detected in on-site soil samples, including acetone (120J µg/kg in sample S3), toluene (50 µg/kg in sample S9), xylenes (total) (20J µg/kg in sample S6), copper (783N*J mg/kg in sample S7), and mercury (0.29 mg/kg in sample S6) (definitions and interpretations of qualifiers are provided in Table 4-1). These TCL compounds and TAL analytes are attributable to the site because they were detected at levels above those detected in the background samples.

A potential does exist for TCL compounds and TAL analytes to migrate from the site to groundwater, based on the following information.

- TCL compounds and TAL analytes were detected at levels above background in on-site soil/sediment samples.

- Industrial wastes were deposited in the lagoon and have not been removed (Baxter et al. 1990).

- No liner exists at the lagoon.

- On-site spills of asphalt, gasoline, and heating oil were documented.

The potential for TCL compounds and TAL analytes to migrate to groundwater is also based on the following geologic and hydrogeologic information.

The geology in the area of the site consists of alluvium-containing unconsolidated sands, clays, and gravels that extend to bedrock consisting of Ordovician-age Eden Shale and Limestone (Bownocker 1981). The Great Miami Buried Valley (Great Miami) aquifer, which is a federally designated sole source aquifer, is located beneath the site. Groundwater in the Great Miami aquifer flows toward the southwest, and has a pumping rate in excess of 1,000 gallons per minute (Regional Council of Governments 1988).

According to area soil boring logs, the geology beneath the site consists of alternating layers of clay and gravel to a depth of approximately 33 to 44 feet. The clay and gravel overlie sand and gravel, which is present at a depth of approximately 58 to 99 feet (see Appendix E for soil boring logs of the area of the site). According to area well logs, the Ordovician-age bedrock is present at a depth of approximately 81 feet below ground surface (see Appendix F for well logs of the area of the site). Well logs also indicate that significant layers of clay exist in the unconsolidated deposits. These clay layers are not continuous; however, they may retard the vertical migration of water. Beyond the lacustrine deposits from the Ohio and Great Miami rivers, limestone and dolomite bedrock is exposed at the surface. Because there is no continuous confining layer of clay throughout a 3-mile radius of the site, the unconsolidated deposits and the bedrock form the aquifer of concern (AOC). Private wells in the area of the site are finished in the unconsolidated deposits.

The majority of the residents within a 3-mile radius of the Chevron Asphalt site obtain their drinking water from private and municipal wells that draw from the AOC. The 3-mile radius of the Chevron Asphalt site includes portions of three states: Ohio, Indiana, and Kentucky. The nearest residential well is located approximately 8/10 miles from the site. The population potentially affected by the migration of TCL compounds and TAL analytes from the site to groundwater includes those residents in Ohio, Indiana, and Kentucky who use private residential wells as their source of drinking water. Residents of Cleves and North Bend, Hamilton County, Ohio, who reside within a 3-mile radius of the site receive drinking water from the Cleves municipal water system (Meves 1990), which consists of four municipal wells located outside a 3-mile radius of the site. Therefore, the population that resides within a 3-mile radius of the site that is served by the Cleves municipal water system is not included in the potential target population. Residents of Lawrenceburg, Indiana, who reside within a 3-mile radius of the site obtain their drinking water from the Lawrenceburg municipal water system (Horney 1990). However, these residents are not included in the potential target population because the three municipal wells that supply the city of Lawrenceburg are located outside a 3-mile radius of the Chevron Asphalt site.

In Hamilton County, Ohio, approximately 379 persons obtain drinking water from private wells located within a 3-mile radius of the Chevron Asphalt site. This population was calculated by the counting the houses located in Hamilton County within a 3-mile radius of the site, but outside municipal water service boundaries, on United States Geological Survey (USGS) topographic maps of the area of the site (USGS 1954, 1961, 1961a, 1982) and multiplying this number by the persons-per-household value of 2.65 for Hamilton County, Ohio (U.S. Bureau of the Census 1982).

All persons in Boone County, Kentucky, who reside within a 3-mile radius of the site draw water from private wells. The population potentially affected by the migration of TCL compounds and TAL analytes to groundwater in Boone County, Kentucky, is approximately 338 persons. This population was calculated by counting the number of houses located in Boone County within a 3-mile radius of the site on USGS topographic

maps of the area of the site (USGS 1954, 1961, 1961a, 1982) and multiplying this number by the persons-per-household value of 3.07 for Boone County, Kentucky (U.S. Bureau of the Census 1982).

In Dearborn County, Indiana, approximately 574 persons obtain drinking water from private wells located within a 3-mile radius of the site. This population was calculated by counting houses in Dearborn County within a 3-mile radius of the site, but outside municipal water service boundaries, on USGS topographic maps of the area of the site (USGS 1954, 1961a) and multiplying this number by the persons-per-household value of 2.96 for Dearborn County, Indiana (U.S. Bureau of the Census 1982).

The total population in Ohio, Indiana, and Kentucky potentially affected by the migration of TCL compounds and TAL analytes from the site to groundwater is approximately 1,291 persons.

5.3 SURFACE WATER

The body of surface water nearest to the site is Dark Hollow Creek, which crosses the site. The Great Miami River flows into the Ohio River approximately 1 mile downstream from the site.

TCL compounds and TAL analytes were detected in sediment samples collected from Dark Hollow Creek and the on-site lagoon. Most of the TCL compounds and TAL analytes detected in the downstream sediment samples were detected at levels similar to those detected in the upstream sediment sample, S1. The TAL analyte mercury, detected at 0.19 mg/kg in downstream sediment sample S5, is attributable to the site because it was not detected in the upstream sediment sample. Mercury was also detected at levels above background in an on-site soil sample and the sediment sample from the lagoon.

A potential does exist for TCL compounds and TAL analytes to migrate from the site to surface water, based on the following information.

- Sediment sample S5 was collected from Dark Hollow Creek, which flows through the site and empties into the Ohio River.

- On-site spills of asphalt, gasoline, and heating oil were documented.

There are no surface water intakes located within 3 miles downstream of the site (Simpson 1991; Rudolph 1990). The Ohio River is used for recreational purposes (Connet 1990).

5.4 AIR

A release of TCL compounds or TAL analytes to the air was not documented during the SSI of the Chevron Asphalt site. During the reconnaissance inspection, FIT site-entry instruments (combination explosimeter/oxygen meter and colorimetric monitoring tubes for hydrogen cyanide) did not detect levels that deviated from background concentrations at the site. However, the OVA detected organic vapors at ground level that deviated from background at one location, in the basin of the lagoon. In accordance with the U.S. EPA-approved work plan, further air monitoring was not conducted by FIT.

A potential does not exist for TCL compounds and TAL analytes to migrate from the site via windblown particulates because most of the site is covered with vegetation.

5.5 FIRE AND EXPLOSION

According to federal, state, and local file information reviewed by FIT, and a telephone conversation with Don Heinrich, Fire Chief, North Bend, Ohio, no documentation exists of an incident of fire or explosion at the site (Heinrich 1990). According to FIT observations and site-entry equipment readings, no potential for fire or explosion existed at the site at the time of the SSI.

5.6 DIRECT CONTACT

According to federal, state, and local file information reviewed by FIT, observations made during the SSI, and the interview with site representatives, no incidents of direct contact with TCL compounds or TAL analytes at the Chevron Asphalt site have been documented. However, a potential does exist for the general public to come into direct

contact with TCL compounds and TAL analytes detected on-site, based on the following information.

- TCL compounds and TAL analytes were detected in on-site surface soil samples.

- The site is not completely fenced. There is no fencing around the southern part of the site.

The population within a 1-mile radius of the site potentially affected through direct contact with TCL compounds and TAL analytes at the site is 70 persons. This population was calculated by counting houses within a 1-mile radius of the site on USGS topographic maps (USGS 1954, 1961) and multiplying this number by a persons-per-household value of 2.65 for Hamilton County, Ohio, and 3.07 for Boone County, Kentucky (U.S. Bureau of the Census 1982).

6. REFERENCES

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7206:9

APPENDIX A

SITE 4-MILE RADIUS MAP

CLEVES MUNICIPAL WELL FIELD

GREENDALE MUNICIPAL WELL FIELD

LAWRENCEBURG MUNICIPAL WELL FIELD

WL1

WL2

WL3

WL4

SITE

SOIL BORING LOGS 1-5

1/4-MILE RADIUS

1/2-MILE RADIUS

1-MILE RADIUS

2-MILE RADIUS

3-MILE RADIUS

4-MILE RADIUS

INDIANA

OHIO

KENTUCKY

R1W R1E

T6N

T5N

CLEVES WATER DISTRIBUTION BOUNDARY

GREENDALE WATER DISTRIBUTION BOUNDARY

LAWRENCEBURG WATER DISTRIBUTION BOUNDARY

ecology and environment inc.
111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604
International Specialists in the Environment

N1/2, SEC.35, SW1/4, SW1/4, SEC.36, F.R.1T.2

SITE NAME: CHEVRON USA INC-CINCINNATI ASPHALT REF

U.S. EPA ID#: OHD083364679

TDD:F05-8804-005

SCALE 1:24,000

USGS TOPOGRAPHIC MAPS

NAME: GUILFORD	NAME: HOOVEN	NAME: ADDYSTON
DATE: 1966	DATE: 1954	DATE: 1982
REVISED: 1983	REVISED: 1970	REVISED: 1987
NAME: AURORA	NAME: LAWRENCEBURG	NAME: BURLINGTON
DATE: 1981	DATE: 1961	DATE: 1961
REVISED:	REVISED:	REVISED: 1969,1974

SCALE 0 1/2 1 MILE

CONTOUR INTERVAL 10 Ft.

KENTUCKY

QUADRANGLE LOCATION

APPENDIX B

U.S. EPA FORM 2070-13

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION
01 STATE: OH | 02 SITE NUMBER: D083364679

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
Chevron USA Inc.-Cincinnati Asphalt Ref	11001 Brower Road				
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 COUNTY**	**07 COUNTY CODE**	**08 CONG DIST**
North Bend	OH	45052	Hamilton	061	02

09 COORDINATES: LATITUDE 39°07'12.8" | LONGITUDE 84°47'39.2"

10 TYPE OF OWNERSHIP (Check one): ☒ A. PRIVATE ☐ B. FEDERAL ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL ☐ F. OTHER ☐ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
10, 10, 90 (MONTH DAY YEAR)	☒ ACTIVE ☐ INACTIVE	1954 (BEGINNING YEAR) presently active (ENDING YEAR) ☐ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)
☐ A. EPA ☒ B. EPA CONTRACTOR Ecology & Environment Inc. (Name of firm) ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR _____ (Name of firm)
☐ E. STATE ☐ F. STATE CONTRACTOR _____ (Name of firm) ☐ G. OTHER _____ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
Dennis Palmer	Chemist	Ecology and Environment Inc	(312) 663-9415
09 OTHER INSPECTORS	**10 TITLE**	**11 ORGANIZATION**	**12 TELEPHONE NO.**
Russ Crittenden	Geographer	same	( ) same
Tim Mayers	Geographer	same	( ) same
Deborah Hallock	Biologist	same	( ) same
Jackie Vogt	Community Health Specialist	same	( ) same
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
Ralph Baxter	Operations Supervisor	11001 Brower Road North Bend, OH 45052	(513) 941-4400
L.D. Turley	Refinery Manager	same	( ) same
Don Kittle	Maintenance Supervisor	same	( ) same
Dan Hemker	Project Engineer Superfund Site Management	575 Market Street San Francisco, CA 94120-7924	(415) 894-6915
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
☒ PERMISSION ☐ WARRANT	0830-1730	rainy windy 40-50°F

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
Mark A. Lehar	Ohio EPA, Southwest District Office	(513) 285-6057

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
Scott A Turek	U.S. EPA	Ecology and Environment, Inc	(312) 663-9415	7, 16, 91 (MONTH DAY YEAR)

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D 083364679

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- ☐ A. SOLID
- ☐ B. POWDER, FINES
- ☒ C. SLUDGE
- ☐ D. OTHER _____ (Specify)
- ☐ E. SLURRY
- ☒ F. LIQUID
- ☐ G. GAS

02 WASTE QUANTITY AT SITE
(Measures of waste quantities must be independent)

- TONS: unKnown
- CUBIC YARDS: unKnown
- NO. OF DRUMS: unKnown

03 WASTE CHARACTERISTICS (Check all that apply)

- ☒ A. TOXIC
- ☐ B. CORROSIVE
- ☐ C. RADIOACTIVE
- ☒ D. PERSISTENT
- ☐ E. SOLUBLE
- ☐ F. INFECTIOUS
- ☒ G. FLAMMABLE
- ☐ H. IGNITABLE
- ☐ I. HIGHLY VOLATILE
- ☐ J. EXPLOSIVE
- ☐ K. REACTIVE
- ☐ L. INCOMPATIBLE
- ☐ M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS	unKnown		
PSD	PESTICIDES			Refer to Tables 4-1, 4-2
OCC	OTHER ORGANIC CHEMICALS	unKnown		Also refer to Section 2-3
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS	unKnown		

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
	Refer to Tables 4-1, 4-2				
	Also refer to Section	2-3			

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS	petroleum asphalt		FDS	heating fuel #2	
FDS	fuel oil #4		FDS	fuel oil #6	
FDS	gasoline		FDS	Kerosene	
FDS	naphtha	91-20-3	FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

FIT SSI 10/10/90
FIT file information

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 STATE: OH | 02 SITE NUMBER: OD083364679

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A. GROUNDWATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☒ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 1,291 — 04 NARRATIVE DESCRIPTION

Refer to Section 2-3 and 5-2

01 ☒ B. SURFACE WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) — ☒ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: unKnown — 04 NARRATIVE DESCRIPTION

Refer to Section 5-3

01 ☐ C. CONTAMINATION OF AIR — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

Refer to Section 5-4

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: NA — 04 NARRATIVE DESCRIPTION

Refer to Section 5-5

01 ☒ E. DIRECT CONTACT — 02 ☐ OBSERVED (DATE: _____) — ☒ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 70 — 04 NARRATIVE DESCRIPTION

Refer to Section 5-6

01 ☒ F. CONTAMINATION OF SOIL — 02 ☒ OBSERVED (DATE: 10/10/90) — ☐ POTENTIAL — ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: 95 (Acres) — 04 NARRATIVE DESCRIPTION

Refer to Table 4-1

01 ☒ G. DRINKING WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☒ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 1,291 — 04 NARRATIVE DESCRIPTION

Refer to Section 2-3

01 ☒ H. WORKER EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) — ☒ POTENTIAL — ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: 30 — 04 NARRATIVE DESCRIPTION

Active facility

01 ☒ I. POPULATION EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) — ☒ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 1,291 — 04 NARRATIVE DESCRIPTION

Refer to A, B, E, G, and H above
Also refer to Section 5-6

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D083364679

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☒ J. DAMAGE TO FLORA — 02 ☒ OBSERVED (DATE: 10/10/90) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION
An area of distressed vegetation was observed between the six large storage tanks and the western part of the berm in the westernmost parcel of the southern section.

01 ☒ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION (Include name(s) of species)
Fauna could be affected through the consumption of contaminated flora.

01 ☒ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION
The food chain could be indirectly affected through the bioaccumulation of TCL compounds and TAL analytes.

01 ☒ M. UNSTABLE CONTAINMENT OF WASTES (Spills, Runoff, Standing liquids, Leaking drums) — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☒ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 1,291
04 NARRATIVE DESCRIPTION
spills of asphalt, gasoline, and #2 heating oil occurred from 1980-1983
See Section 2-3

01 ☒ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION
potential for TCL compounds and TAL analytes to migrate to surface water

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION
NA

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION
NA

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS
none Known

III. TOTAL POPULATION POTENTIALLY AFFECTED: 1,291

IV. COMMENTS
Mercury was detected in a surface soil and a sediment from Dark Hollow Creek.
The ammonia/nitrate plume that was detected in groundwater during the 1970's was believed to originate off-site.

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)
FIT file information
FIT SSI 10/10/90

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D083364679

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
☒ A. NPDES				outfall to Dark Hollow Creek
☐ B. UIC				
☒ C. AIR				
☐ D. RCRA				
☐ E. RCRA INTERIM STATUS				
☒ F. SPCC PLAN				
☒ G. STATE (Specify)				boiler
☐ H. LOCAL (Specify)				
☐ I. OTHER (Specify)				
☐ J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
☒ A. SURFACE IMPOUNDMENT	unknown	
☐ B. PILES		
☐ C. DRUMS, ABOVE GROUND		
☐ D. TANK, ABOVE GROUND		
☐ E. TANK, BELOW GROUND		
☐ F. LANDFILL		
☒ G. LANDFARM	unknown	
☐ H. OPEN DUMP		
☐ I. OTHER (Specify)		

04 TREATMENT (Check all that apply)

- ☐ A. INCENERATION
- ☐ B. UNDERGROUND INJECTION
- ☐ C. CHEMICAL/PHYSICAL
- ☐ D. BIOLOGICAL
- ☐ E. WASTE OIL PROCESSING
- ☐ F. SOLVENT RECOVERY
- ☒ G. OTHER RECYCLING/RECOVERY
- ☐ H. OTHER (Specify)

05 OTHER

☒ A. BUILDINGS ON SITE

12

06 AREA OF SITE

95 (Acres)

07 COMMENTS

The surface impoundment is the lagoon located in the northern section. The 1.2 million barrels is the storage tank capacity at the site. Most of the waste is off-specification material which is normally recycled.

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

☐ A. ADEQUATE, SECURE ☐ B. MODERATE ☒ C. INADEQUATE, POOR ☐ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.

no liner exists for the lagoon
Berms, diking, and other barriers exist to assure containment of tank leaks.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ☐ YES ☒ NO

02 COMMENTS Areas where TCL compounds and TAL analytes were detected in the soils are not readily accessible due to the Dark Hollow Creek, the berm system, fencing, and security.

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

FIT file information
FIT SSI 10/10/90

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION
01 STATE: OH | 02 SITE NUMBER: OD083364679

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)

	SURFACE	WELL
COMMUNITY	A. ☐	B. ☐
NON-COMMUNITY	C. ☐	D. ☒

02 STATUS

ENDANGERED	AFFECTED	MONITORED
A. ☐	B. ☐	C. ☐
D. ☐	E. ☐ unknown	F. ☐

03 DISTANCE TO SITE
A. > 3 (mi)
B. ~.8 (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

☒ A. ONLY SOURCE FOR DRINKING ☐ B. DRINKING (Other sources available) COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available) ☐ C. COMMERCIAL, INDUSTRIAL, IRRIGATION (Limited other sources available) ☐ D. NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER: 1,291
03 DISTANCE TO NEAREST DRINKING WATER WELL: .8 (mi)

04 DEPTH TO GROUNDWATER	05 DIRECTION OF GROUNDWATER FLOW	06 DEPTH TO AQUIFER OF CONCERN	07 POTENTIAL YIELD OF AQUIFER	08 SOLE SOURCE AQUIFER
42.5 (ft)	southwest	42.5 (ft)	1,000 gpm ~~(gpd)~~	☒ YES ☐ NO

09 DESCRIPTION OF WELLS (Including useage, depth, and location relative to population and buildings)

Refer to Section 5-2 of SSIR

10 RECHARGE AREA		11 DISCHARGE AREA	
☒ YES ☐ NO	COMMENTS: precipitation percolating down to aquifer	☒ YES ☐ NO	COMMENTS: Ohio River acts as a discharge area

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

☒ A. RESERVOIR (RECREATION) DRINKING WATER SOURCE ☐ B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES ☐ C. COMMERCIAL, INDUSTRIAL ☐ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
Ohio River	☐	adjacent (mi)
Dark Hollow Creek	☒	on-site (mi)
	☐	(mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE	TWO (2) MILES OF SITE	THREE (3) MILES OF SITE
A. ~70 NO. OF PERSONS	B. ~265 NO. OF PERSONS	C. ~1600 NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION: .8 (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE: ~142

04 DISTANCE TO NEAREST OFF-SITE BUILDING: ~50 ft ~~(mi)~~

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

Refer to Section 2-2

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D 083364679

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

☐ A. $10^{-6} - 10^{-8}$ cm/sec ■ B. $10^{-4} - 10^{-6}$ cm/sec ☐ C. $10^{-4} - 10^{-3}$ cm/sec ☐ D. GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

☐ A. IMPERMEABLE (Less than 10^{-6} cm/sec) ■ B. RELATIVELY IMPERMEABLE ($10^{-4} - 10^{-6}$ cm/sec) ☐ C. RELATIVELY PERMEABLE ($10^{-2} - 10^{-4}$ cm/sec) ☐ D. VERY PERMEABLE (Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH
~81 (ft)	unknown (ft)	unknown

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE: SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
6 (in)	2.43 (in)	<1 %	south	<1 %

09 FLOOD POTENTIAL

SITE IS IN 100 YEAR FLOODPLAIN

10

NA ☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE	OTHER
A. NA (mi)	B. NA (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

NA (mi)

ENDANGERED SPECIES: NA

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS; FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS: PRIME AG LAND	AGRICULTURAL LANDS: AG LAND
A. adjacent (mi)	B. 3 (mi)	C. NA (mi)	D. NA (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

Adjacent to Ohio River
See Appendix A

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

FIT file information
U.S. Department of Commerce, 1979, Climatic Atlas of the U.S. Climatic Center, Ashville, NC
USGS Lawrenceburg KY Quadrangle, 1961, 1:24,000.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
OH	D 083364679

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER	1 production well	NET Midwest Inc. Bartlett, IL - TCL Southwest Labs of OKlahoma, Broken Arrow, OK - TAL	now available
SURFACE WATER			
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL	10 soil/sediment samples	NET Midwest Inc. Bartlett, IL - TCL Southwest Labs of OKlahoma, Broken Arrow, OK - TAL	now available
VEGETATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
OVA 128	up to 10ppm in basin area of lagoon
Combination oxygen and explosimeter	no readings above background
Rad-mini	no readings above background
Draeger pump with HCN tubes	no color change

IV. PHOTOGRAPHS AND MAPS

01 TYPE ☒ GROUND ☐ AERIAL

02 IN CUSTODY OF Ecology & Environment Inc, Chicago, IL
(Name of organization or individual)

03 MAPS ☒ YES ☐ NO

04 LOCATION OF MAPS: Ecology and Environment Inc. Chicago, IL

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

Ph, conductivity, and temperature of groundwater sample (refer to Table 4-2)

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

FIT SSI 10/10/90
FIT file information

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 - OWNER INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D083364679

II. CURRENT OWNER(S)

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE
Chevron USA Inc.	unknown	11001 Brower Rd	unknown	North Bend	OH	45052

PARENT COMPANY (If applicable)

08 NAME	09 D+B NUMBER	10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE	12 CITY	13 STATE	14 ZIP CODE
Chevron Corporation	unknown	575 Market Street	unknown	San Francisco	CA	94120-7924
NA						
NA						
NA						

III. PREVIOUS OWNER(S) (List most recent first)

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE
Standard Oil Company of California	unknown	unknown	unknown	unknown		
NA						
NA						
NA						

IV. REALTY OWNER(S) (If applicable; list most recent first)

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE
NA						
NA						
NA						

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

FIT SSI 10/10/90

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D083364679

II. CURRENT OPERATOR (Provide if different from owner)

Field	Value
01 NAME	Chevron USA Inc. Cincinnati Asphalt Refinery
02 D+B NUMBER	unknown
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	11001 Brower Road
04 SIC CODE	unknown
05 CITY	North Bend
06 STATE	OH
07 ZIP CODE	45052
08 YEARS OF OPERATION	1954 - present
09 NAME OF OWNER	Chevron USA Inc.

OPERATOR'S PARENT COMPANY (If applicable)

Field	Value
10 NAME	Chevron Corporation
11 D+B NUMBER	unknown
12 STREET ADDRESS (P.O. Box, RFD #, etc.)	575 Market Street
13 SIC CODE	unknown
14 CITY	San Francisco
15 STATE	CA
16 ZIP CODE	94120-7924

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE	08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD
unknown								
unknown								
unknown								

PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)

10 NAME	11 D+B NUMBER	12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE	14 CITY	15 STATE	16 ZIP CODE
unknown						
unknown						
unknown						

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

FIT SSI 10/10/90

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D083364679

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER
Chevron USA Inc Cincinnati Asphalt Refinery	unknown

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
11001 Brower Road	unknown

05 CITY	06 STATE	07 ZIP CODE
North Bend	OH	45052

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
receives finished liquid asphalt from refinery	unknown	NA	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
unknown	unknown		

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
near Pascagoula	Miss				

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
NA		NA	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

IV. TRANSPORTER(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
Rumke	unknown	NA	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
unknown	unknown		

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
Cincinnati	OH				

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
NA		NA	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

V. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

FIT SSI 10/10/90

FIT file information

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
OH	D083364679

II. PAST RESPONSE ACTIVITIES

01 ☐ A. WATER SUPPLY CLOSED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ C. PERMANENT WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ D. SPILLED MATERIAL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ E. CONTAMINATED SOIL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ F. WASTE REPACKAGED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ G. WASTE DISPOSED ELSEWHERE — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ H. ON SITE BURIAL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ I. IN SITU CHEMICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ J. IN SITU BIOLOGICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ K. IN SITU PHYSICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ L. ENCAPSULATION — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ M. EMERGENCY WASTE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ N. CUTOFF WALLS — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ O. EMERGENCY DIKING/SURFACE WATER DIVERSION — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ P. CUTOFF TRENCHES/SUMP — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ Q. SUBSURFACE CUTOFF WALL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D083364679

II PAST RESPONSE ACTIVITIES *(Continued)*

01 ☐ R. BARRIER WALLS CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ S. CAPPING/COVERING — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ T. BULK TANKAGE REPAIRED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ U. GROUT CURTAIN CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ V. BOTTOM SEALED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ W. GAS CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ X. FIRE CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ Y. LEACHATE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ Z. AREA EVACUATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ 1. ACCESS TO SITE RESTRICTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ 2. POPULATION RELOCATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

01 ☐ 3. OTHER REMEDIAL ACTIVITIES — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
NA

III. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

FIT file information
FIT SSI 10/10/90

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
OH	D 083364679

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☐ YES ☒ NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

Refer to Section 2-3

III. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

refer to references

EPA FORM 2070-13 (7-81)

APPENDIX C

FIT SITE PHOTOGRAPHS

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Chevron USA Inc — Cincinnati Asphalt Refinery PAGE 1 OF 20

U.S. EPA ID: OHD 083 364 679 TDD: F05-8804-005 PAN: F OH 0556 SBR

DATE: 10/10/90

TIME: 1300

DIRECTION OF PHOTOGRAPH: West

WEATHER CONDITIONS: Rain, 60-70°F

PHOTOGRAPHED BY: D. Palmer

SAMPLE ID (if applicable): S1

DESCRIPTION: Photo placard of Sediment sample S1 (placard was mistakenly labelled as S2).

DATE: 10/10/90

TIME: 1300

DIRECTION OF PHOTOGRAPH: West

WEATHER CONDITIONS: Rain, 60-70°F

PHOTOGRAPHED BY: D. Palmer

SAMPLE ID (if applicable): S1

DESCRIPTION: Perspective photograph of Sediment Sample S1 sample point and placard.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Chevron USA Inc-Cincinnati Asphalt Refinery PAGE 2 OF 2Ø

U.S. EPA ID: OHD Ø83 364679 TDD: FØ5-8804-ØØ5 PAN: FOHØ556SBR

DATE: 1Ø/1Ø/9Ø

TIME: 13ØØ

DIRECTION OF PHOTOGRAPH: SW

WEATHER CONDITIONS: Rain, 60-70°F

PHOTOGRAPHED BY: D. Palmer

SAMPLE ID (if applicable): S1

DESCRIPTION: View from near Sediment Sample Point S1 of the east branch of Dark Hollow Creek flowing toward Chevron site.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Chevron USA Inc — Cincinnati Asphalt Refinery PAGE 3 OF 20

U.S. EPA ID: OHD 083 364 679 TDD: F05-8804-0005 PAN: F OH 05565BR

DATE: 10/10/90

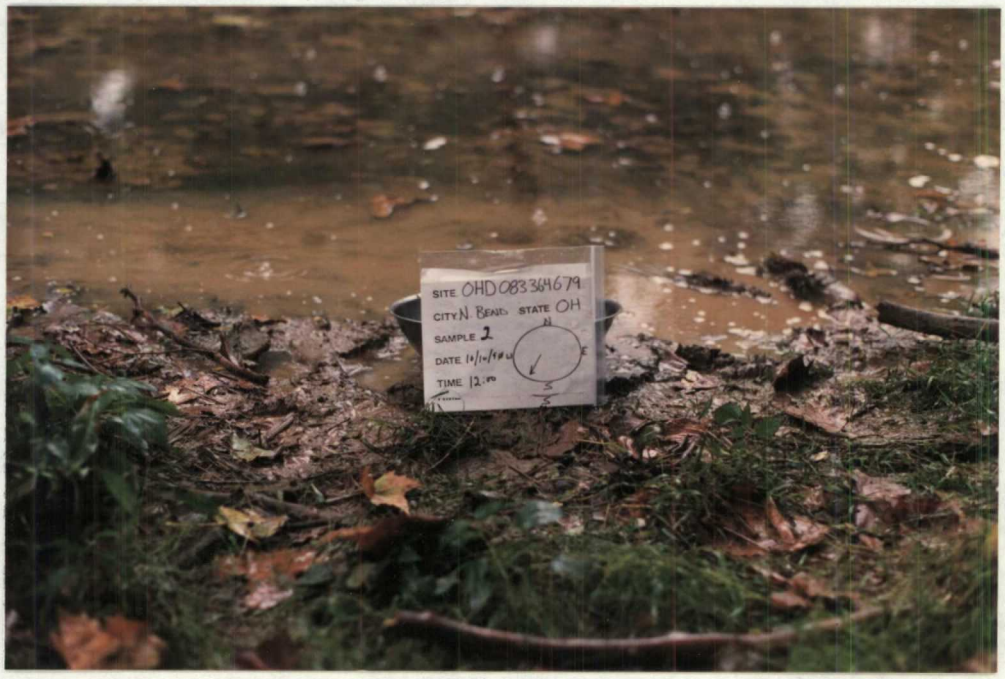
TIME: 1200

DIRECTION OF PHOTOGRAPH: Southwest

WEATHER CONDITIONS: Rain, 60-70°F

PHOTOGRAPHED BY: D. Palmer

SAMPLE ID (if applicable): S2



DESCRIPTION: Photograph of Sediment Sample S2 sample point and placard.

DATE: 10/10/90

TIME: 1200

DIRECTION OF PHOTOGRAPH: South west

WEATHER CONDITIONS: Rain, 60-70°F

PHOTOGRAPHED BY: D. Palmer

SAMPLE ID (if applicable):

DESCRIPTION: Perspective photograph of Sediment Sample S2 sample point on Dark Hollow Creek.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Chevron USA Inc — Cincinnati Asphalt Refinery PAGE 4 OF 20

U.S. EPA ID: OHD 083 364 679 TDD: F05-8804-0005 PAN: F OH 05561 5BR

DATE: 10/10/94

TIME: 1300

DIRECTION OF PHOTOGRAPH: Southeast

WEATHER CONDITIONS: Rain, 60-70°F

PHOTOGRAPHED BY: T. Mayer

SAMPLE ID (if applicable): S3

DESCRIPTION: Photograph of Sediment Sample Point S3 and placard.

DATE: 10/10/94

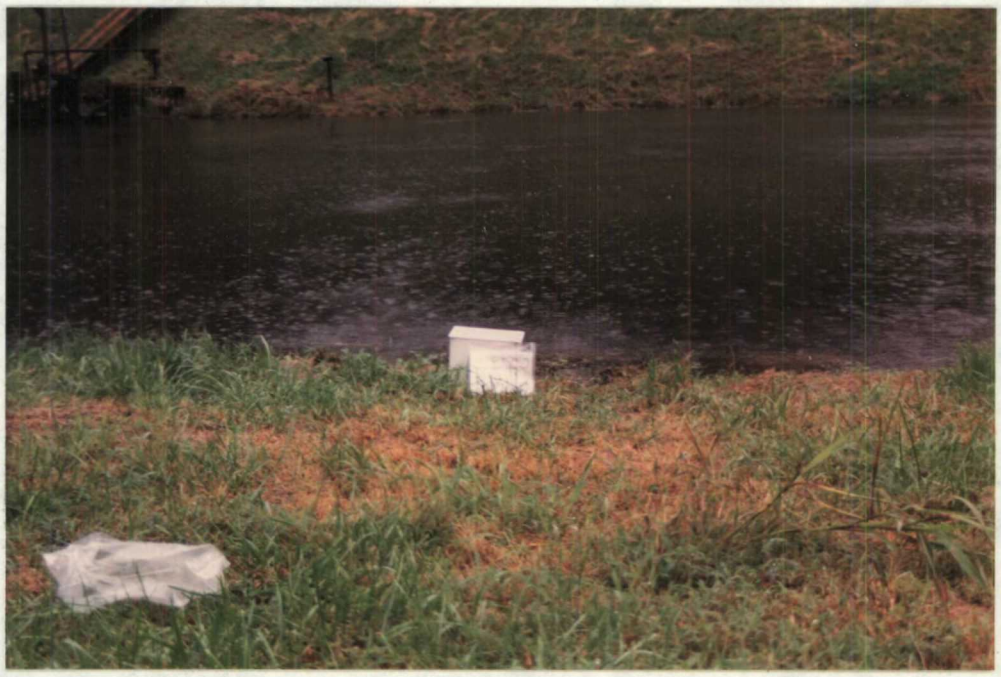
TIME: 1300

DIRECTION OF PHOTOGRAPH: Southeast

WEATHER CONDITIONS: Rain, 60-70°F

PHOTOGRAPHED BY: T. Mayer

SAMPLE ID (if applicable): S3



DESCRIPTION: Perspective of Sediment Sample Point S3 and placard.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Chevron USA Inc — Cincinnati Asphalt Refinery PAGE 5 OF 20

U.S. EPA ID: OHD 083 364 679 TDD: F05-8804-005 PAN: F OH 05565BR

DATE: 10/10/98

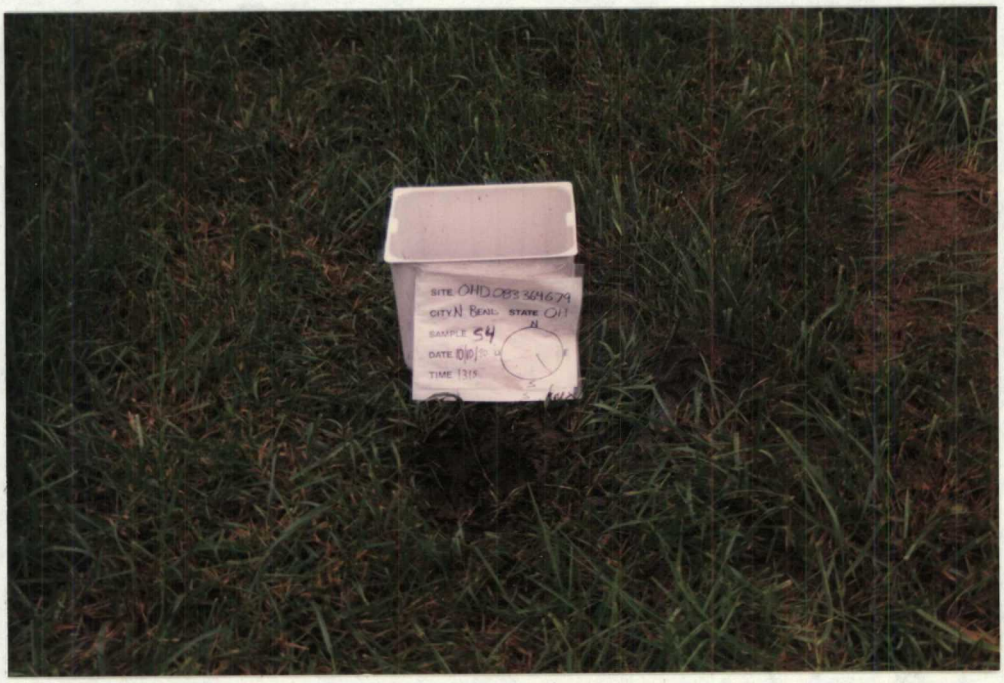
TIME: 1315

DIRECTION OF PHOTOGRAPH: Southeast

WEATHER CONDITIONS: Rain, 60-70°F

PHOTOGRAPHED BY: T. Mayers

SAMPLE ID (if applicable): S4



DESCRIPTION: Photograph of Soil Sample Point S4 and placard.

DATE: 10/10/98

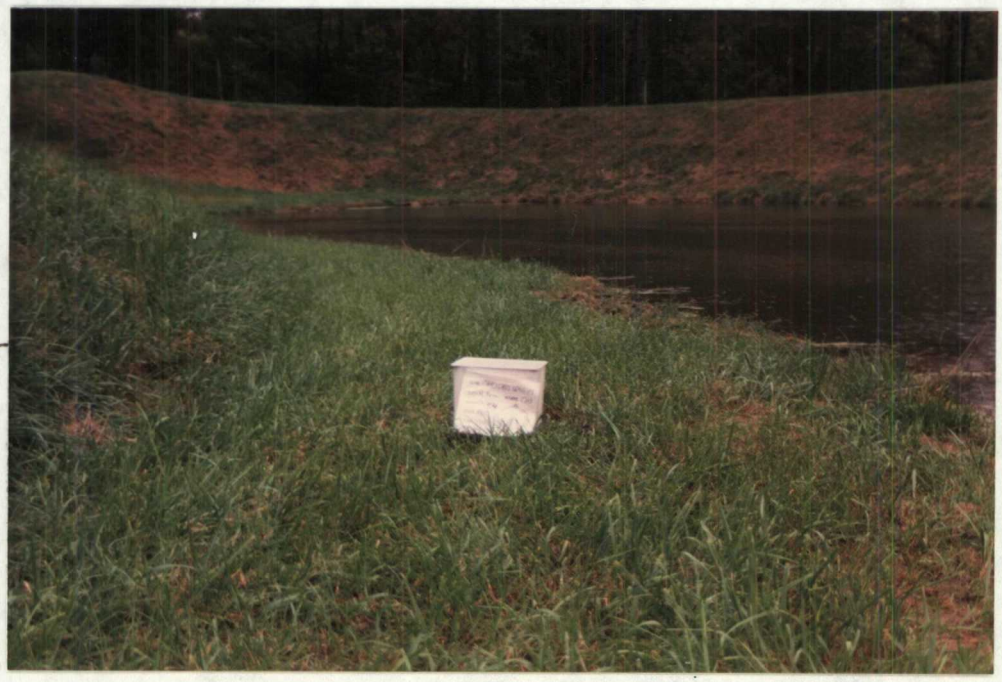
TIME: 1315

DIRECTION OF PHOTOGRAPH: East

WEATHER CONDITIONS: Rain, 60-70°F

PHOTOGRAPHED BY: T. Mayers

SAMPLE ID (if applicable): S4



DESCRIPTION: Perspective photograph of Soil Sample Point S4 and placard.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Chevron USA Inc — Cincinnati Asphalt Refinery PAGE 6 OF 20

U.S. EPA ID: OHD 083 364 679 TDD: F05-8804-005 PAN: FOH 05565BR

DATE: 10/18/90

TIME: 1415

DIRECTION OF PHOTOGRAPH: South

WEATHER CONDITIONS: Rain, 60-70°F

PHOTOGRAPHED BY: T. Mayers

SAMPLE ID (if applicable): S5

DESCRIPTION: Photograph of Sediment Sample S5 point and placard at Dark Hollow Creek

DATE: 10/18/90

TIME: 1415

DIRECTION OF PHOTOGRAPH: South

WEATHER CONDITIONS: Rain, 60-70°F

PHOTOGRAPHED BY: T. Mayers

SAMPLE ID (if applicable): S5

DESCRIPTION: Photograph of location of Sediment Sample S5 point on Dark Hollow Creek. Sample point was on left of photograph near foreground.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Chevron USA Inc — Cincinnati Asphalt Refinery PAGE 7 OF 20

U.S. EPA ID: OHD 083 364 679 TDD: F05-8804-005 PAN: F OH 05565BR

DATE: 10/11/90

TIME: 830

DIRECTION OF PHOTOGRAPH: South

WEATHER CONDITIONS: Sunny, 70°F

PHOTOGRAPHED BY: D. Palmer

SAMPLE ID (if applicable): S5

DESCRIPTION: Perspective photo of Sediment Sample Point S5 location. Inclusion of guard rail was to more accurately establish S5 location

DATE: 10/11/90

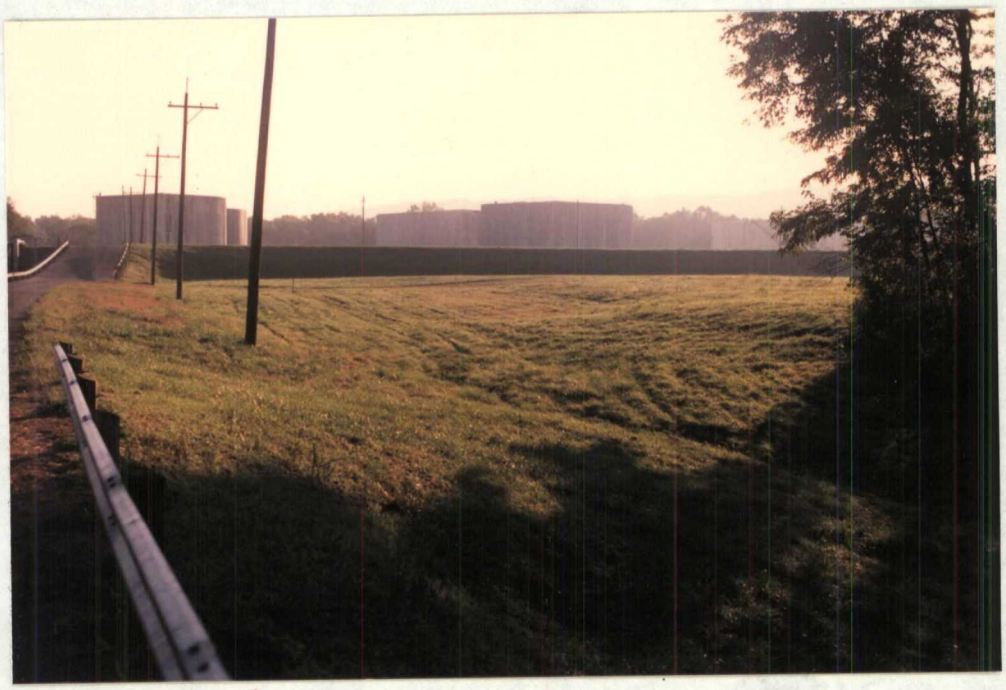
TIME: 830

DIRECTION OF PHOTOGRAPH: East

WEATHER CONDITIONS: Sunny, 70°F

PHOTOGRAPHED BY: D. Palmer

SAMPLE ID (if applicable): S5



DESCRIPTION: View to the east from same point as the upper photograph taken.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Chevron USA Inc — Cincinnati Asphalt Refinery PAGE 8 OF 20

U.S. EPA ID: OHD 083 364 679 TDD: F05-8804-0005 PAN: F OH 05565BR

DATE: 10/14/90

TIME: 1400

DIRECTION OF PHOTOGRAPH: Southeast

WEATHER CONDITIONS: Rain, 60-70°F

PHOTOGRAPHED BY: T. Mayers

SAMPLE ID (if applicable): S6

DESCRIPTION: Photograph of Soil Sample Point S6 and placard.

DATE: 10/14/90

TIME: 1400

DIRECTION OF PHOTOGRAPH: North

WEATHER CONDITIONS: Rain, 60-70°F

PHOTOGRAPHED BY: T. Mayers

SAMPLE ID (if applicable): S6

DESCRIPTION: Perspective photograph of soil sample Point S6 and placard.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Chevron USA Inc - Cincinnati Asphalt Refinery PAGE 9 OF 20

U.S. EPA ID: OHD 083 364 679 TDD: F05-8804-005 PAN: FOH05565BR

DATE: 10/11/90

TIME: 840

DIRECTION OF PHOTOGRAPH: West

WEATHER CONDITIONS: Sunny, 78°F

PHOTOGRAPHED BY: D. Palmer

SAMPLE ID (if applicable): S6

DESCRIPTION: Perspective of Soil Sample Point S6 location from the berm.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Chevron USA Inc - Cincinnati Asphalt Refinery PAGE 1 OF 2

U.S. EPA ID: OHD 083 364 679 TDD: F05-8804-005 PAN: FOIA 5562 SBR

DATE: 10/18/90

TIME: 1400

DIRECTION OF PHOTOGRAPH: West

WEATHER CONDITIONS: Rain, 60-70°F

PHOTOGRAPHED BY: D. Palmer

SAMPLE ID (if applicable): S7

DESCRIPTION: Photograph of Soil Sample Point S7 and placard.

DATE: 10/18/90

TIME: 1400

DIRECTION OF PHOTOGRAPH: W

WEATHER CONDITIONS: Rain, 60-70°F

PHOTOGRAPHED BY: D. Palmer

SAMPLE ID (if applicable): S7

DESCRIPTION: Perspective photograph of location of Soil Sample Point S7 and placard

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Chevron USA Inc – Cincinnati Asphalt Refinery PAGE 11 OF 20

U.S. EPA ID: OHD 083 364 679 TDD: F05-8804-005 PAN: FOIA 5561 SBR

DATE: 10/10/98

TIME: 1430

DIRECTION OF PHOTOGRAPH: South

WEATHER CONDITIONS: Rain, 60–70°F

PHOTOGRAPHED BY: D. Palmer

SAMPLE ID (if applicable): S8

DESCRIPTION: Photograph of Soil Sample Point S8 and placard.

DATE: 10/10/98

TIME: 1430

DIRECTION OF PHOTOGRAPH: S

WEATHER CONDITIONS: Rain, 60–70°F

PHOTOGRAPHED BY: D. Palmer

SAMPLE ID (if applicable): S8

DESCRIPTION: Prespective photograph of Soil Sample Point S8 location and placard.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Chevron USA Inc – Cincinnati Asphalt Refinery PAGE 12 OF 20

U.S. EPA ID: OHD083 364 679 TDD: F05-8804-005 PAN: FOH 0556SBR

DATE: 10/15/90

TIME: 1530

DIRECTION OF PHOTOGRAPH: Southeast

WEATHER CONDITIONS: Rain, 60–70 °F

PHOTOGRAPHED BY: T. Mayers

SAMPLE ID (if applicable): S9

DESCRIPTION: Photograph of Soil Sample Point S9 and placard.

DATE: 10/15/90

TIME: 1530

DIRECTION OF PHOTOGRAPH: Southeast

WEATHER CONDITIONS: Rain, 60–70 °F

PHOTOGRAPHED BY: T. Mayers

SAMPLE ID (if applicable): S9

DESCRIPTION: Perspective photograph of Soil Sample Point S9 location and placard.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Chevron USA Inc — Cincinnati Asphalt Refinery PAGE 13 OF 20

U.S. EPA ID: OHD 083 364 679 TDD: F05-8804-0005 PAN: F OH 05561SBR

DATE: 10/10/90

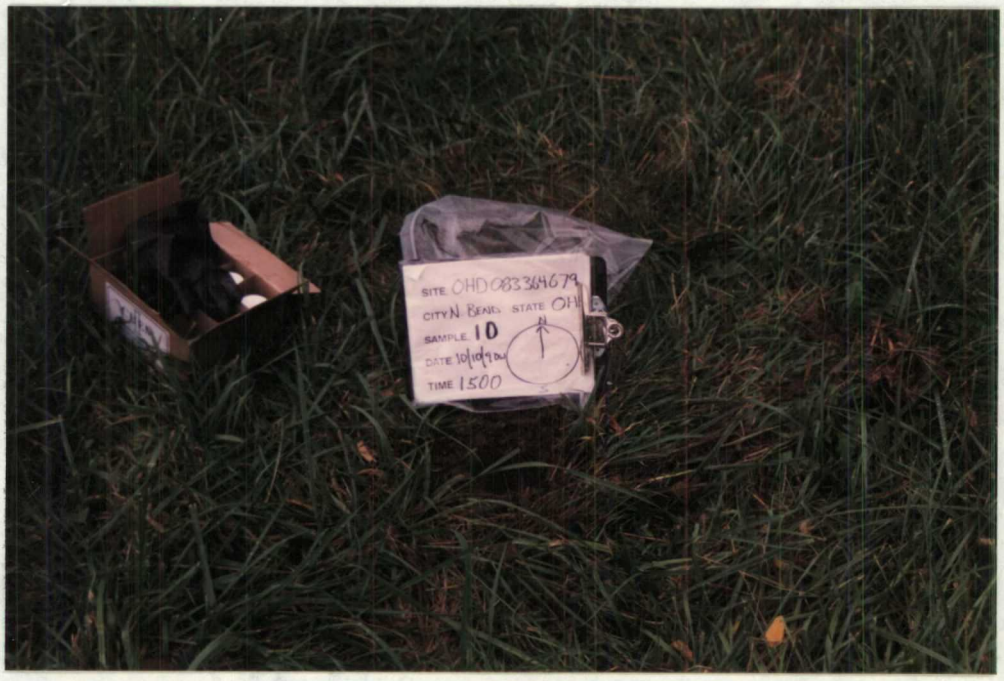
TIME: 1500

DIRECTION OF PHOTOGRAPH: North

WEATHER CONDITIONS: Rain, 60–70°F

PHOTOGRAPHED BY: T. Mayers

SAMPLE ID (if applicable): S10



DESCRIPTION: Photograph of Soil Sample Point S10 and placard.

DATE: 10/10/90

TIME: 1500

DIRECTION OF PHOTOGRAPH: North

WEATHER CONDITIONS: Rain, 60-70°F

PHOTOGRAPHED BY: T. Mayers

SAMPLE ID (if applicable): S10

DESCRIPTION: Perspective photograph of Soil Sample Point S10 location and placard.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Chevron USA Inc-Cincinnati Asphalt Refinery PAGE 14 OF 20

U.S. EPA ID: OHD 083 364 679 TDD: F05-8804-0005 PAN: FOH0556 5BR

DATE: 10/11/98

TIME: 900

DIRECTION OF PHOTOGRAPH: E

WEATHER CONDITIONS: Sunny, 70°F

PHOTOGRAPHED BY: D. Palmer

SAMPLE ID (if applicable): S10

DESCRIPTION: Perspective photograph of Soil Sample Point S10 location.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Chevron USA Inc-Cincinnati Asphalt Refinery PAGE 15 OF 20

U.S. EPA ID: OHD 083 364 679 TDD: F05-8804-005 PAN: FOH0556BR

DATE: 10/18/90

TIME: 1530

DIRECTION OF PHOTOGRAPH: S

WEATHER CONDITIONS: Rain, 60-70°F

PHOTOGRAPHED BY: D. Palmer

SAMPLE ID (if applicable): PW1

DESCRIPTION: Photograph of Production Well Sample Point PW1. The Well is identified as P337, the South Well

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Chevron USA Inc-Cincinnati Asphalt Refinery PAGE 16 OF 20

U.S. EPA ID: OHD 083 364 679 TDD: F05-8804-005 PAN: FOH0556SBR

DATE: 10/10/90

TIME: 1530

DIRECTION OF PHOTOGRAPH: S

WEATHER CONDITIONS: Rain, 60- 70°F

PHOTOGRAPHED BY: D. Palmer

SAMPLE ID (if applicable): PW1

DESCRIPTION: Perspective photograph of Production Well Sample Point PW 1.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Chevron USA Inc — Cincinnati Asphalt Refinery PAGE 17 OF 20

U.S. EPA ID: OHD 083 364 679 TDD: F05-8804-0005 PAN: F OH 05561 5BR

DATE: 10/11/90

TIME: 815

DIRECTION OF PHOTOGRAPH: East

WEATHER CONDITIONS: Sunny, 70°F

PHOTOGRAPHED BY: D. Palmer

SAMPLE ID (if applicable): N/A

DESCRIPTION: Photograph of Outfall 001.

DATE: 10/11/90

TIME: 810

DIRECTION OF PHOTOGRAPH: East

WEATHER CONDITIONS: Sunny, 70°F

PHOTOGRAPHED BY: D. Palmer

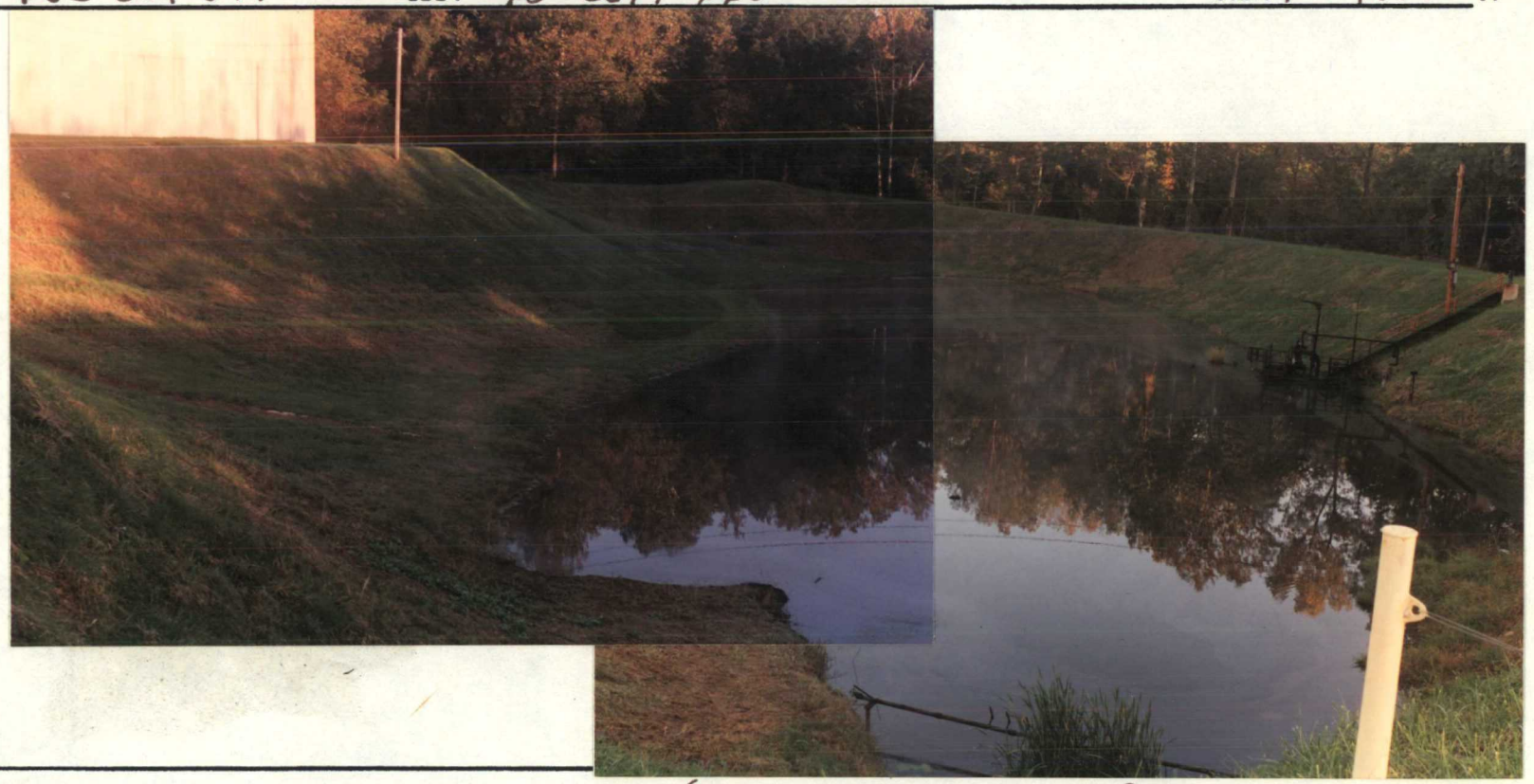
SAMPLE ID (if applicable): N/A

DESCRIPTION: Photograph of Unit (a.k.a. Tank) 304. A lagoon is beside and below the level of the tank. It is located to the right of the Tank 304 in the photograph.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Chevron USA Inc — Cincinnati Asphalt Refinery PAGE 18 OF 20

U.S. EPA ID: OHD 083 364 679 TDD: F05-8804-0005 PAN: FOH0556SBR



DATE: 10/11/98 TIME: 810 DIRECTION OF PHOTOGRAPH: N PHOTOGRAPHED BY: D. Palmer

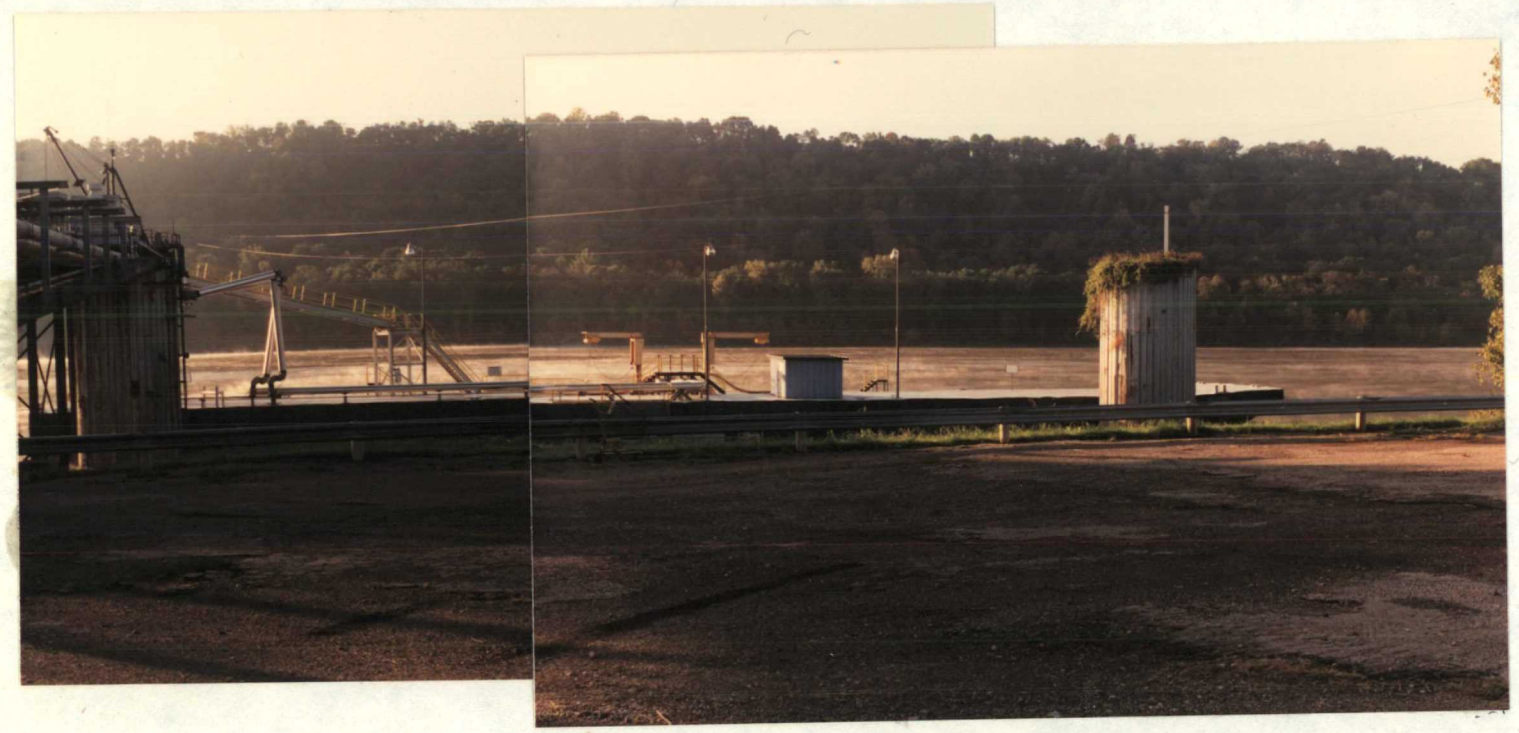
WEATHER CONDITIONS: Sunny, 70°F SAMPLE ID (if applicable): _____

DESCRIPTION: Panoramic photographs of the lagoon beside Tank 304.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Chevron USA Inc. — Cincinnati Asphalt Refinery PAGE 19 OF 20

U.S. EPA ID: OHD 083 364 679 TDD: F05-8804-0005 PAN: FOH0556SBR



DATE: 18/11/94 TIME: 845 DIRECTION OF PHOTOGRAPH: South PHOTOGRAPHED BY: D. Palmer

WEATHER CONDITIONS: Sunny, 78°F SAMPLE ID (if applicable): N/A

DESCRIPTION: Panoramic photography of barge loading terminal on the Ohio River.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: Chevron USA Inc - Cincinnati Asphalt Refinery PAGE 20 OF 20

U.S. EPA ID: OHD 083 364 679 TDD: F05-8804-005 PAN: F014 0556 SBR

DATE: 10/11/90

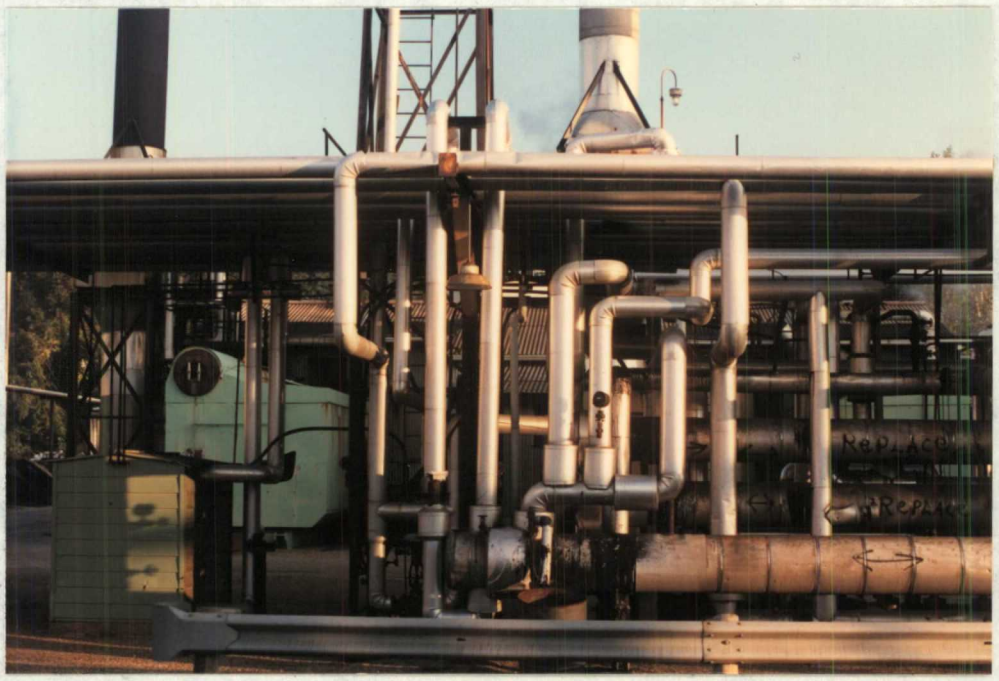
TIME: 905

DIRECTION OF PHOTOGRAPH: North

WEATHER CONDITIONS: Sunny, 70°F

PHOTOGRAPHED BY: D. Palmer

SAMPLE ID (if applicable): N/A



DESCRIPTION: Photograph showing location of boiler-house. It is the structure with the corrugated metal roof.

DATE: 10/11/90

TIME: 905

DIRECTION OF PHOTOGRAPH: NE

WEATHER CONDITIONS: Sunny, 70°F

PHOTOGRAPHED BY: D. Palmer

SAMPLE ID (if applicable): N/A

DESCRIPTION: Photograph of the furnaces on-site. Their function is to supply hot water and steam for operational purposes.

APPENDIX D

U.S. EPA TARGET COMPOUND LIST AND TARGET ANALYTE LIST QUANTITATION/DETECTION LIMITS

ROUTINE ANALYTICAL SERVICES
CONTRACT REQUIRED DETECTION AND QUANTITATION LIMITS

Contract Laboratory Program
Target Compound List
Quantitation Limits

COMPOUND	CAS #	WATER	SOIL SEDIMENT SLUDGE
Chloromethane	74-87-3	10 ug/L	10 ug/Kg
Bromomethane	74-83-9	10	10
Vinyl chloride	75-01-4	10	10
Chloroethane	75-00-3	10	10
Methylene chloride	75-09-2	5	5
Acetone	67-64-1	10	5
Carbon disulfide	75-15-0	5	5
1,1-dichloroethene	75-35-4	5	5
1,1-dichloroethane	75-34-3	5	5
1,2-dichloroethene (total)	540-59-0	5	5
Chloroform	67-66-3	5	5
1,2-dichloroethane	107-06-2	5	5
2-butanone (MEK)	78-93-3	10	10
1,1,1-trichloroethane	71-55-6	5	5
Carbon tetrachloride	56-23-5	5	5
Vinyl acetate	108-05-4	10	10
Bromodichloromethane	75-27-4	5	5
1,2-dichloropropane	78-87-5	5	5
cis-1,3-dichloropropene	10061-01-5	5	5
Trichloroethene	79-01-6	5	5
Dibromochloromethane	124-48-1	5	5
1,1,2-trichloroethane	79-00-5	5	5
Benzene	71-43-2	5	5
Trans-1,3-dichloropropene	10061-02-6	5	5
Bromoform	75-25-2	5	5
4-Methyl-2-pentanone	108-10-1	10	10
2-Hexanone	591-78-6	10	10
Tetrachloroethene	127-18-4	5	5
Tolene	108-88-3	5	5
1,1,2,2-tetrachloroethane	79-34-5	5	5
Chlorobenzene	108-90-7	5	5
Ethyl benzene	100-41-4	5	5
Styrene	100-42-5	5	5
Xylenes (total)	1330-20-7	5	5

Table A
Contract Laboratory Program
Target Compound List
Semivolatiles Quantitation Limits

COMPOUND	CAS #	WATER	SOIL SEDIMENT SLUDGE
Phenol	108-95-2	10 ug/L	330 ug/Kg
bis(2-Chloroethyl) ether	111-44-4	10	330
2-Chlorophenol	95-57-8	10	330
1,3-Dichlorobenzene	541-73-1	10	330
1,4-Dichlorobenzene	106-46-7	10	330
Benzyl Alcohol	100-51-6	10	330
1,2-Dichlorobenzene	95-50-1	10	330
2-Methylphenol	95-48-7	10	330
bis(2-Chloroisopropyl) ether	108-60-1	10	330
4-Methylphenol	106-44-5	10	330
N-Nitroso-di-n-dipropylamine	621-64-7	10	330
Hexachloroethane	67-72-1	10	330
Nitrobenzene	98-95-3	10	330
Isophorone	78-59-1	10	330
2-Nitrophenol	88-75-5	10	330
2,4-Dimethylphenol	105-67-9	10	330
Benzoic Acid	65-85-0	50	1600
bis(2-Chloroethoxy) methane	111-91-1	10	330
2,4-Dichlorophenol	120-83-2	10	330
1,2,4-Trichlorobenzene	120-82-1	10	330
Naphthalene	91-20-3	10	330
4-Chloroaniline	106-47-8	10	330
Hexachlorobutadiene	87-68-3	10	300
4-Chloro-3-methylphenol	59-50-7	10	330
2-Methylnaphthalene	91-57-6	10	330
Hexachlorocyclopentadiene	77-47-4	10	330
2,4,6-Trichlorophenol	88-06-2	10	330
2,4,5-Trichlorophenol	95-95-4	50	1600
2-Chloronaphthalene	91-58-7	10	330
2-Nitroaniline	88-74-4	50	1600
Dimethylphthalate	131-11-3	10	330
Acenaphthylene	208-96-8	10	330
2,6-Dinitrotoluene	606-20-2	10	330
3-Nitroaniline	99-09-2	50	1600
Acenaphthene	83-32-9	10	330
2,4-Dinitrophenol	51-28-5	50	1600
4-Nitrophenol	100-02-7	50	1600
Dibenzofuran	132-64-9	10	330
2,4-Dinitrotoluene	121-14-2	10	330
Diethylphthalate	84-66-2	10	330
4-Chlorophenyl-phenyl ether	7005-72-3	10	330

Table A
Contract Laboratory Program
Target Compound List
Semivolatiles Quantitation Limits

COMPOUND	CAS #	WATER	SOIL SLUDGE SEDIMENT
Fluorene	86-73-7	10 ug/L	330 ug/Kg
4-Nitroaniline	100-01-6	50	1600
4,6-Dinitro-2-methylphenol	534-52-1	50	1600
N-nitrosodiphenylamine	86-30-6	10	330
4-Bromophenyl-phenylether	101-55-3	10	330
Hexachlorobenzene	118-74-1	10	330
Pentachlorophenol	87-86-5	50	1600
Phenanthrene	85-01-8	10	330
Anthracene	120-12-7	10	330
Di-n-butylphthalate	84-74-2	10	330
Fluoranthene	206-44-0	10	330
Pyrene	129-00-0	10	330
Butylbenzylphthalate	85-68-7	10	330
3,3'-Dichlorobenzidine	91-94-1	20	660
Benzo(a)anthracene	56-55-3	10	330
Chrysene	218-01-9	10	330
bis(2-Ethylhexyl)phthalate	117-81-7	10	330
Di-n-octylphthalate	117-84-0	10	330
Benzo(b)fluoranthene	205-99-2	10	330
Benzo(k)fluoranthene	207-08-9	10	330
Benzo(a)pyrene	50-32-8	10	330
Indeno(1,2,3-cd)pyrene	193-39-5	10	330
Dibenz(a,h)anthracene	53-70-3	10	330
Benzo(g,h,i)perylene	191-24-2	10	330

Table A
Contract Laboratory Program
Target Compound List
Pesticide and PCB Quantitation Limits

COMPOUND	CAS #	WATER	SOIL SEDIMENT SLUDGE
alpha-BHC	319-84-6	0.05 ug/L	8 ug/Kg
beta-BHC	319-85-7	0.05	8
delta-BHC	319-86-8	0.05	8
gamma-BHC (Lindane)	58-89-9	0.05	8
Heptachlor	76-44-8	0.05	8
Aldrin	309-00-2	0.05	8
Heptachlor epoxide	1024-57-3	0.05	8
Endosulfan I	959-98-8	0.05	8
Dieldrin	60-57-1	0.10	16
4,4'-DDE	72-55-9	0.10	16
Endrin	72-20-8	0.10	16
Endosulfan II	33213-65-9	0.10	16
4,4'-DDD	72-54-8	0.10	16
Endosulfan sulfate	1031-07-8	0.10	16
4,4'-DDT	50-29-3	0.10	16
Methoxychlor (Mariate)	72-43-5	0.5	80
Endrin ketone	53494-70-5	0.10	16
alpha-Chlordane	5103-71-9	0.5	80
gamma-chlordane	5103-74-2	0.5	80
Toxaphene	8001-35-2	1.0	160
AROCLOR-1016	12674-11-2	0.5	80
AROCLOR-1221	11104-28-2	0.5	80
AROCLOR-1232	11141-16-5	0.5	80
AROCLOR-1242	53469-21-9	0.5	80
AROCLOR-1248	12672-29-6	0.5	80
AROCLOR-1254	11097-69-1	1.0	160
AROCLOR-1260	11096-82-5	1.0	160

Table A (Cont.)

CONTRACT LABORATORY PROGRAM

TARGET ANALYTE LIST (TAL)

INORGANIC DETECTION LIMITS

Compound	Procedure	Detection Limits: Water (µg/L)	Detection Limits: Soil Sediment Sludge (mg/kg)
aluminum	ICP	200	40
antimony	furnace	60	2.4
arsenic	furnace	10	2
barium	ICP	200	40
beryllium	ICP	5	1
cadmium	ICP	5	1
calcium	ICP	5,000	1,000
chromium	ICP	10	2
cobalt	ICP	50	10
copper	ICP	25	5
iron	ICP	100	20
lead	furnace	5	1
magnesium	ICP	5,000	1,000
manganese	ICP	15	3
mercury	cold vapor	0.2	0.008
nickel	ICP	40	8
potassium	ICP	5,000	1,000
selenium	furnace	5	1
silver	ICP	10	2
sodium	ICP	5,000	1,000
thallium	furnace	10	2
tin	ICP	40	8
vanadium	ICP	50	10
zinc	ICP	20	4
cyanide	color	10	2

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APPENDIX E

SOIL BORING LOGS OF THE AREA OF THE SITE

W[illegible] LOG AND DRILLING REPO[illegible]

SOIL BORING LOG 1

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1500 Dublin Road
Columbus, Ohio

No. 179978

County Hamilton Township Miami Section of Township

Owner E. I. DuPont de Nemours & Co. Address Ft. Hill Plant, North Bend, Ohio

Location of property

CONSTRUCTION DETAILS

Casing diameter 5" Length of casing

Type of screen 4" Everdur Length of screen 6 ft.

Type of pump

Capacity of pump

Depth of pump setting

Date of completion

BAILING OR PUMPING TEST

Pumping rate G.P.M. Duration of test hrs.

Drawdown ft. Date

Developed capacity

Static level—depth to water ft.

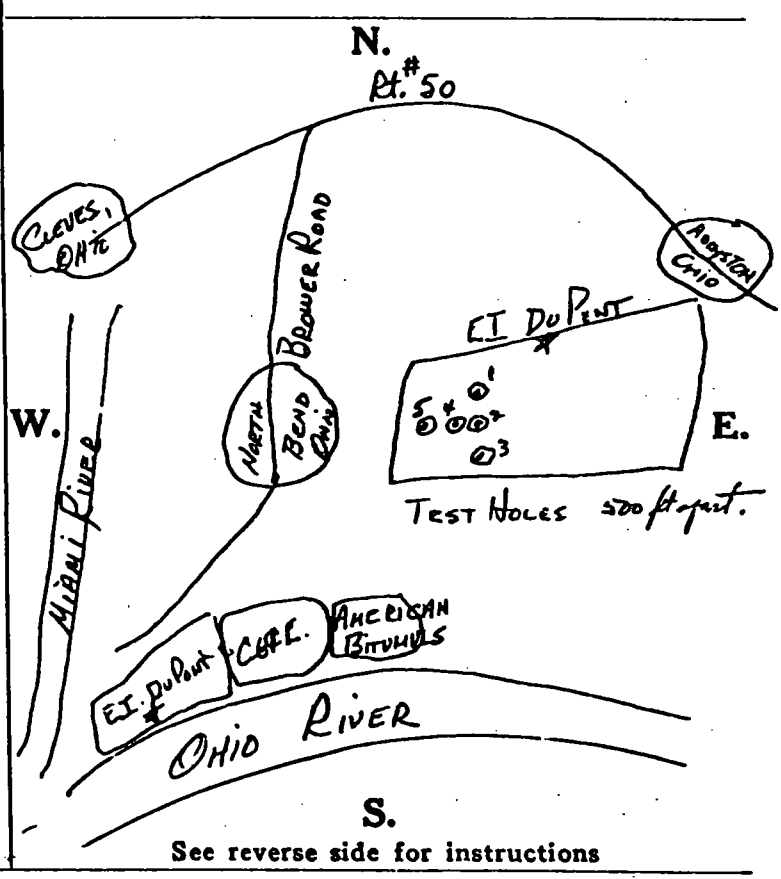
Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
TEST HOLE #1	0 Feet	Ft.
[illegible]p Soil	0'	5'
Yellow Clay	5'	10'
Clay, Some Gravel	10'	16'
Coarse Gravel & Boulders	16'	24'
Clay	24'	28'
Sand, Some Gravel	28'	39'
Clay	39'	40'
Fine Dirty Sand, Some Gravel	40'	50'
Dirty Sand	50'	75'
Good Coarse Gravel	75'	79'
Sand and Gravel	79'	85'
Coarse Sand & Gravel	85'	90'
Good Coarse Sand & Gravel	90'	97'
Coarse Gravel, Some Sand	97'	100'
Gravel and Boulders	100'	101'
Rock	101'	103'

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Diehl Pump & Supply Co., Inc. Date January 12, 1962

Address 2985 Race Road, Cinti. 11, Ohio Signed Edward B. Wagner Co.

Diehl Pump & Supply Co. Inc.

SOIL BORING LOG 2

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1500 Dublin Road
Columbus, Ohio

No. 179979

County Hamilton Township Miami Section of Township

Owner E. I. DuPont de Nemours & Co. Address Ft. Hill Plant, North Bend, Ohio

Location of property

CONSTRUCTION DETAILS

Casing diameter 5" Length of casing

Type of screen - Length of screen -

Type of pump —

Capacity of pump

Depth of pump setting

Date of completion 11-15-61

BAILING OR PUMPING TEST

Pumping rate G.P.M. Duration of test hrs.

Drawdown ft. Date

Developed capacity

Static level—depth to water ft.

Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
TEST HOLE #2	0 Feet	Ft.
Soil & Clay	0'	15'
Yellow Clay	15'	20'
Clay	20'	25'
Coarse Dirty Gravel	25'	30'
Coarse Gravel	30'	38'
Clay	38'	41'
Sandy Clay & Gravel	41'	45'
Sand	45'	50'
Coarse Sand	50'	58'
Coarse Sand, Some Gravel	68'	75'
Coarse Sand	75'	80'
Good Coarse Sand & Gravel	80'	85'
Coarse Sand and Gravel	85'	90'
Good Coarse Gravel & Sand	90'	98½'
Rock	98½'	100½'

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

N.

W. Refer Log 179978 E.

S.

See reverse side for instructions

Drilling Firm Diehl Pump & Supply Co. Date January 12, 1962

Address 3985 Race Rd., Cinti. 11, Ohio Signed Edward B. Wagner 65

Diehl Pump & Supply Co., Inc.

SOIL BORING LOG 3

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1500 Dublin Road
Columbus, Ohio

No. 179980

County Hamilton Township Miami Section of Township

Owner E. I. duPont Denemours & Co. Address Ft. Hill Plant, North Bend, Ohio

Location of property

CONSTRUCTION DETAILS

Casing diameter 5" Length of casing

Type of screen 4" Everdur Length of screen 6 ft.

Type of pump —

Capacity of pump

Depth of pump setting

Date of completion 11-24-61

BAILING OR PUMPING TEST

Pumping rate G.P.M. Duration of test hrs.

Drawdown ft. Date

Developed capacity

Static level—depth to water ft.

Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
TEST HOLE #3	0 Feet	Ft.
Yellow Clay	0'	25'
Yellow Sandy Clay	25'	32'
Blue Clay	32'	33'
Coarse Gravel & Sand	33'	42'
Coarse Sand, Some Gravel	42'	47'
Fine Sand	47'	58'
Coarse Sand, No Gravel	58'	63'
Sand	63'	74'
Coarse Sand	74'	78'
Good Coarse Sand & Gravel	78'	85'
Coarse Sand, Some Gravel	85'	90'
Coarse Sand	90'	95'
Good Sand & Gravel	95'	105'
Coarse Gravel & Lime Boulders	105'	107½'
Soapstone Rock	107½'	109½'

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads. etc.

N.

W. Refer Log 179978 E.

S.

See reverse side for instructions

Drilling Firm Diehl Pump & Supply Co. Date January 12, 1962

Address 3985 Race Rd., Cinti. 11, Ohio Signed Edward B. Wagner 64

Diehl Pump & Supply Co., Inc.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1500 Dublin Road
Columbus, Ohio

SOIL BORING LOG 4

No. 179981

County Hamilton Township Miami Section of Township

Owner E. I. DuPont de Nemours & Co. Address Ft. Hill Plant, North Bend, Ohio

Location of property

CONSTRUCTION DETAILS

Casing diameter 5" Length of casing

Type of screen - Length of screen -

Type of pump -

Capacity of pump

Depth of pump setting

Date of completion 11-17-61

BAILING OR PUMPING TEST

Pumping rate G.P.M. Duration of test hrs.

Drawdown ft. Date

Developed capacity

Static level—depth to water ft.

Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
TEST HOLE #4	0 Feet	Ft.
Top Soil	0'	3'
Yellow Clay	3'	15'
Coarse Gravel	15'	20'
Coarse Dirty Gravel	20'	30'
CoarseSand & Gravel	30'	32'
Fine Sand	32'	36'
Blue Clay	36'	38'
Fine Sand	38'	51'
Sand, Coarse	51'	55'
Coarse Sand, Some Gravel	55'	60'
Sand and Some Gravel	60'	63'
Sand and Some Gravel	63'	73'
Good Gravel, Some Sand	73'	87'
Sand, Gravel & Boulders	87'	90'
Rock	90'	92'

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

N.

W. Ref Log 179978 E.

S.

See reverse side for instructions

Drilling Firm Diehl Pump & Supply Co.

Address 3985 Race Rd., Cinti. 11, Ohio

Date January 12, 1962

Signed Edward B. Wagner 63
Diehl Pump & Supply Co. Inc.

SOIL BORING LOG 5

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1500 Dublin Road
Columbus, Ohio

No. 179982

County Hamilton Township Miami Section of Township

Owner E. I. DuPont de Nemours & Co. Address Ft. Hill Plant, North Bend, Ohio

Location of property

CONSTRUCTION DETAILS

Casing diameter 5" Length of casing
Type of screen 4" Everdur Length of screen 6 ft.
Type of pump —
Capacity of pump
Depth of pump setting
Date of completion 11-21-61

BAILING OR PUMPING TEST

Pumping rate G.P.M. Duration of test hrs.
Drawdown ft. Date
Developed capacity
Static level—depth to water ft.
Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
TEST HOLE #5	0 Feet	Ft.
Top Soil, Clay	0'	15'
Blue Clay	15'	35'
Good Coarse Gravel & Sand	35'	52'
Sand	52'	62'
Coarse Sand	62'	68'
Good Coarse Gravel & Sand	68'	76'
Coarse Sand & Gravel	76'	87'
Rock	87'	89'

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

N.

W. Refer Log 179978 E.

S.

See reverse side for instructions

Drilling Firm Diehl Pump & Supply Co. Date January 12, 1962

Address 3985 Race Rd., Cinti. 11, Ohio Signed Edward L. Wagner 62

Diehl Pump & Supply Co., Inc.

APPENDIX F

WELL LOGS OF THE AREA OF THE SITE

WELL LOG 1

WELL LOG AND DRILLING REPORT

NO CARBON PAPER NECESSARY– SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Geological Survey
Fountain Square
Columbus, Ohio 43224 Phone (614) 466-5344

472225

COUNTY Hamilton TOWNSHIP ~~Jefferson~~ MIAMI SECTION OF TOWNSHIP OR LOT NUMBER

OWNER E. I. du Pont de Nemours & Company ADDRESS Fort Hill Plant, Brower Rd., N. Bend, Ohio

LOCATION OF PROPERTY 5 Miles South West of North Bend, Ohio

CONSTRUCTION DETAILS

Casing diameter 12" Length of casing 98'-4"
Type of screen Cook S. S. Length of screen 25'-8"
Type of pump B-J 10 MQL-7 Stage
Capacity of pump 500 gpm @ 285-ft. TDH
Depth of pump setting 147'-2"
Date of completion March 30, 1977

BAILING OR PUMPING TEST
(specify one by circling)

Test rate 617 gpm Duration of test 6 hrs
Drawdown 15'7" ft Date 4-11-77
Static level (depth to water) 42'5" ft
Quality (clear, cloudy, taste, odor) Good
Pump installed by Moody's of Dayton, Inc.

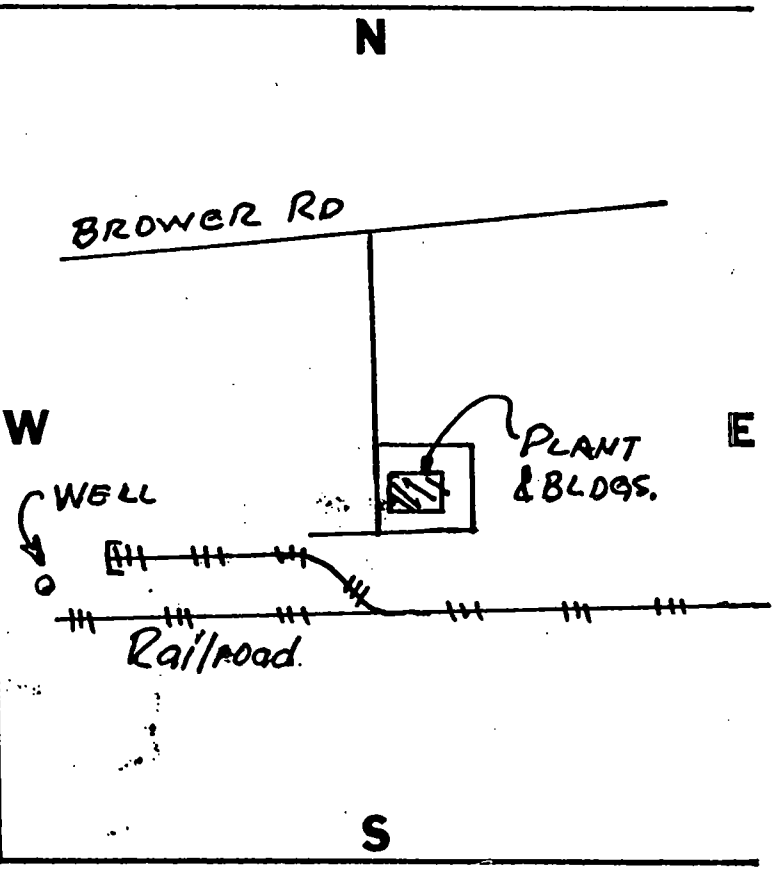
WELL # 37

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
Broken Concrete Fill	0 ft	4 ft
Clay	4	12
Coarse Gravel & Sand	12	25
Medium Gravel & Sand	25	50
Clay	50	65
Gravel, Sand & Clay	65	80
Medium Gravel	80	124

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



DRILLING FIRM MOODY'S OF DAYTON, INC. DATE 22 April '77

ADDRESS P.O. BOX 123, 4359 INFIRMARY RD., MIAMISBURG, OHIO 45342 SIGNED Charlie Buck

*If additional space is needed to complete well log, use next consecutive numbered form.

WELL LOG 2

WEL' LOG AND DRILLING REP^RT

NO CARBON PAPER NECESSARY– SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Geological Survey
Fountain Square
Columbus, Ohio 43224 Phone (614) 466-5344

472209

COUNTY Hamilton TOWNSHIP Miami SECTION OF TOWNSHIP OR LOT NUMBER ____

OWNER Cincinnati Gas & Electric Co. ADDRESS P.O. Box 960, Cincinnati, Oh. 45201

LOCATION OF PROPERTY 5 miles west of North Bend, Oh. along Ohio River

CONSTRUCTION DETAILS

Casing diameter 8" Length of casing 113'
Type of screen Johnson S.S. Length of screen 21'1"
Type of pump ---
Capacity of pump ---
Depth of pump setting ---
Date of completion Dec. 20, 1974

BAILING OR PUMPING TEST
(specify one by circling)

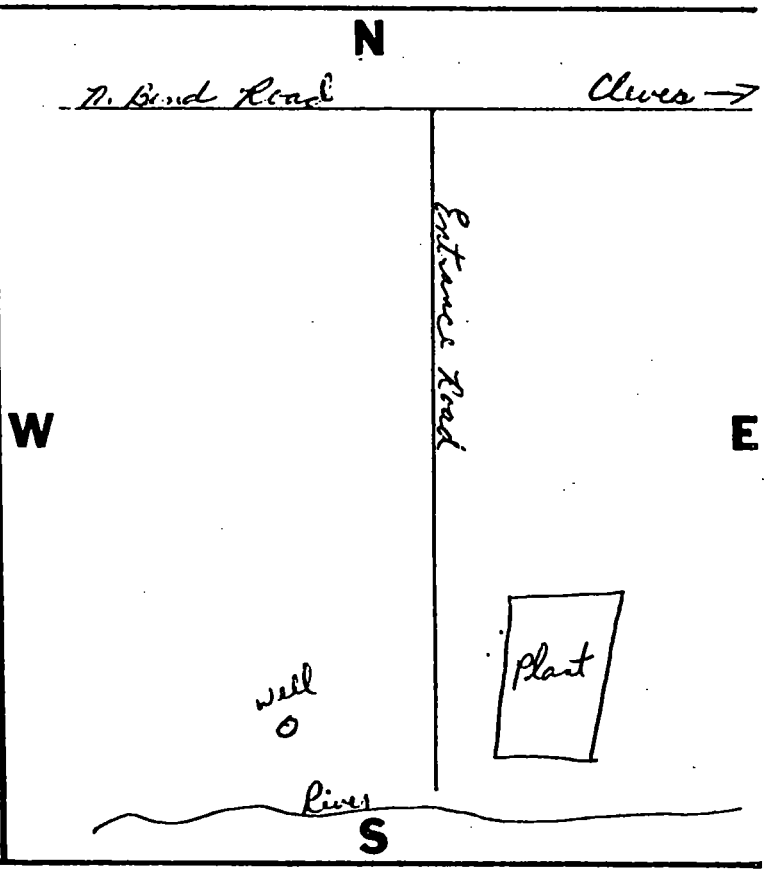
Test rate 120 gpm Duration of test 10 hrs
Drawdown 2'6" ft Date Dec. 1974
Static level (depth to water) 44' ft
Quality (clear, cloudy, taste, odor) Clear
Pump installed by ---

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
Cinders	0 ft	2 ft
Cliff Clay	2	39
Sand, Gravel & Clay	39	75
Medium Gravel & Sand	75	113

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



DRILLING FIRM MOODY'S OF DAYTON, INC. DATE DECEMBER 30, 1975
ADDRESS P.O. BOX 123, MIAMISBURG, OHIO 45342 SIGNED Roger F. Rogers Jr.

*If additional space is needed to complete well log, use next consecutive numbered form.

County Permit No.

NO CARBON PAPER NECESSARY– SELF-TRANSCRIBING

WELL LOG AND DRILLING REPORT

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Fountain Square
Columbus, Ohio 43224

WELL LOG 3

547528

COUNTY Hamilton TOWNSHIP Miami ? SECTION OF TOWNSHIP

OWNER E. I. duPont de Nemours & Company ADDRESS North Bend, Ohio

County Permit No.

NO CARBON PAPER NECESSARY– SELF-TRANSCRIBING

WELL LOG AND DRILLING REPORT

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Fountain Square
Columbus, Ohio 43224

ORIGINAL

547529

COUNTY Hamilton TOWNSHIP Miami ? SECTION OF TOWNSHIP

OWNER E. I. duPont de Nemours & Company ADDRESS North Bend, Ohio

LOCATION OF PROPERTY East of the confluence of the Ohio & Great Miami Rivers

CONSTRUCTION DETAILS

Casing diameter 20" Length of casing 58'

Type of screen 36 x 20 gp s.s Length of screen 25'

Type of pump Byron Jackson submersible

Capacity of pump 750 GPM @ 350 TDH

Depth of pump setting 70'

Date of completion 3/5/80

BAILING OR PUMPING TEST
(specify one by circling)

Test rate 1000 gpm Duration of test 24 hrs

Drawdown 11' ft Date 5/29/80

Static level (depth to water) 11'5" ft

Quality (clear, cloudy, taste, odor) clear

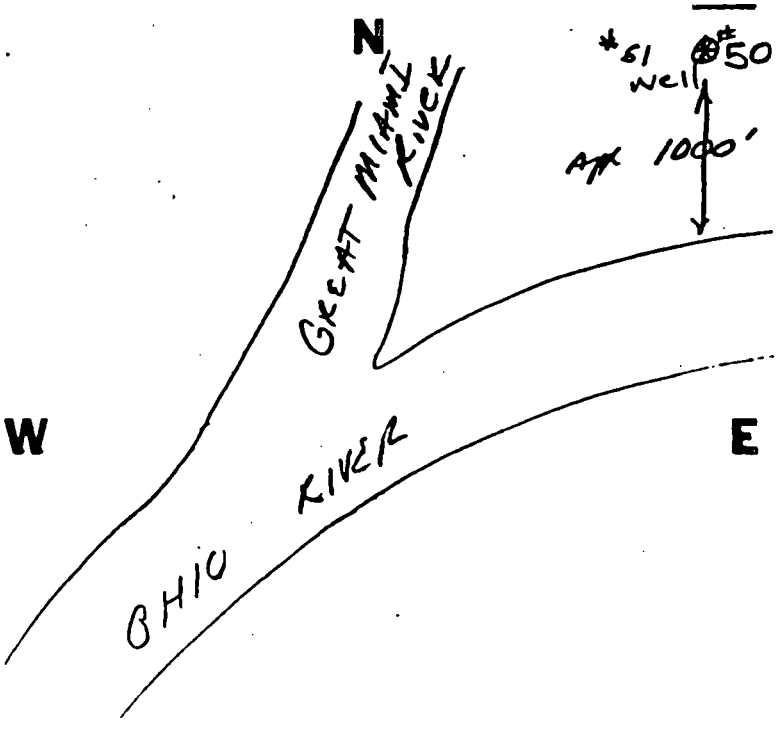
Pump installed by

WELL # 50 WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
Top soil	0 ft	5 ft
Sandy clay	5	25
Grey clay & some gravel	25	30
Grey clay	30	35
Grey clay & med. gravel	35	40
Fine sand & med. gravel	40	60
Coarse gravel	60	70
Coarse gravel & fine sand	70	75
Medium gravel	75	80
Coal seam	80	81
Bedrock	81	85

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



WELL LOG AND DRILLING REPORT

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus, Ohio 43212

WELL LOG 4
No 348946

PLEASE USE PENCIL OR TYPEWRITER
DO NOT USE INK.

County HAMILTON Township Miami Section of Township

Owner CHEVRON ASPHALT CO Address BOX 38014 CINCINNATI, O.

Location of property 11001 BROWER ROAD

CONSTRUCTION DETAILS

Casing diameter 16 Length of casing 100'
Type of screen WIRE WOUND Length of screen 20'
Type of pump VERTICAL TURBINE
Capacity of pump 400 GPM
Depth of pump setting 98'-10½"
Date of completion NOV 27, 1972

BAILING OR PUMPING TEST

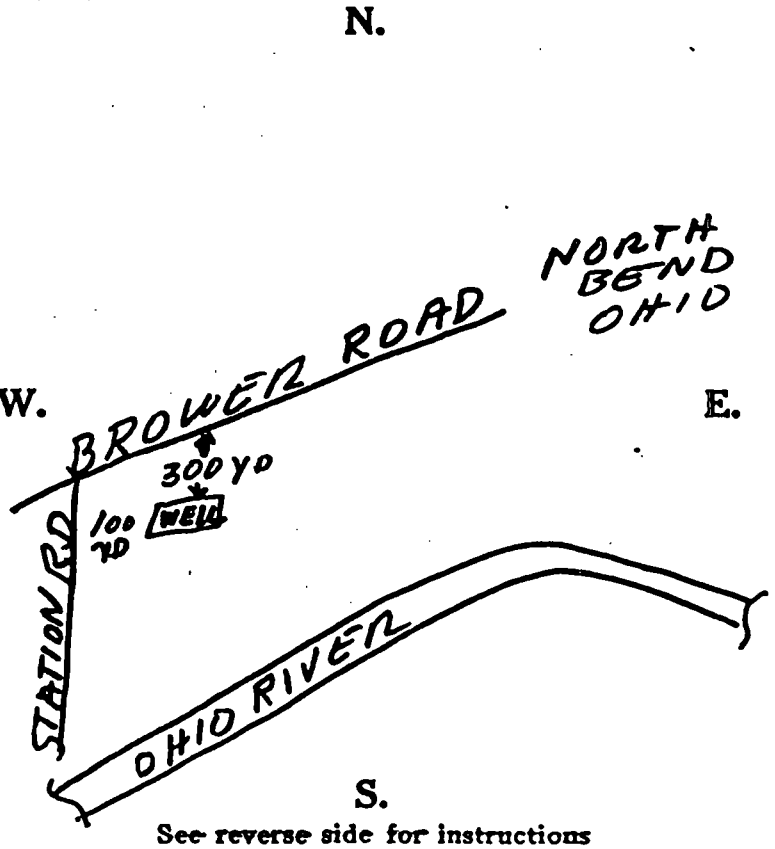
Pumping Rate 454 G.P.M. Duration of test 24 hrs.
Drawdown ? ft. Date 12/14/72
Static level-depth to water 54'-4" ft.
Quality (clear, cloudy, taste, odor) CLEAR - ODORLESS - TASTELESS
Pump installed by DIEHL PUMP

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
ASPHALT	0 Feet	1 Ft.
OVERLAY	1'	50'
BROWN MUD	50'	70'
FINE SAND	70'	86'
FINE SAND SM. GR.	85'	95'
" " MED GR	95'	100'
MED. COARSE SAND	100'	111'
COARSE SAND	111'	120'
BLUE CLAY	120'	

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm DIEHL PUMP Date 12/18/72 30

Address 550 N. WAYNE AVE CINCINNATI, O. 45215 Signed L F Brewer

*If additional space is needed to complete well log, use next consecutive numbered form.

WELL LOG AND DRILLING REPORT

NO CARBON PAPER NECESSARY- SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Geological Survey
Fountain Square
Columbus, Ohio 43224 Phone (614) 466-5344

472225

COUNTY Hamilton TOWNSHIP ~~Jefferson~~ MIAMI SECTION OF TOWNSHIP OR LOT NUMBER

OWNER E. I. du Pont de Nemours & Company ADDRESS Fort Hill Plant, Brower Rd., N. Bend, Ohio

LOCATION OF PROPERTY 5 Miles South West of North Bend, Ohio

CONSTRUCTION DETAILS

Casing diameter 12" Length of casing 98'-4"
Type of screen Cook S. S. Length of screen 25'-8"
Type of pump B-J 10 MQL-7 Stage
Capacity of pump 500 gpm @ 285-ft. TDH
Depth of pump setting 147'-2"
Date of completion March 30, 1977

BAILING OR PUMPING TEST
(specify one by circling)

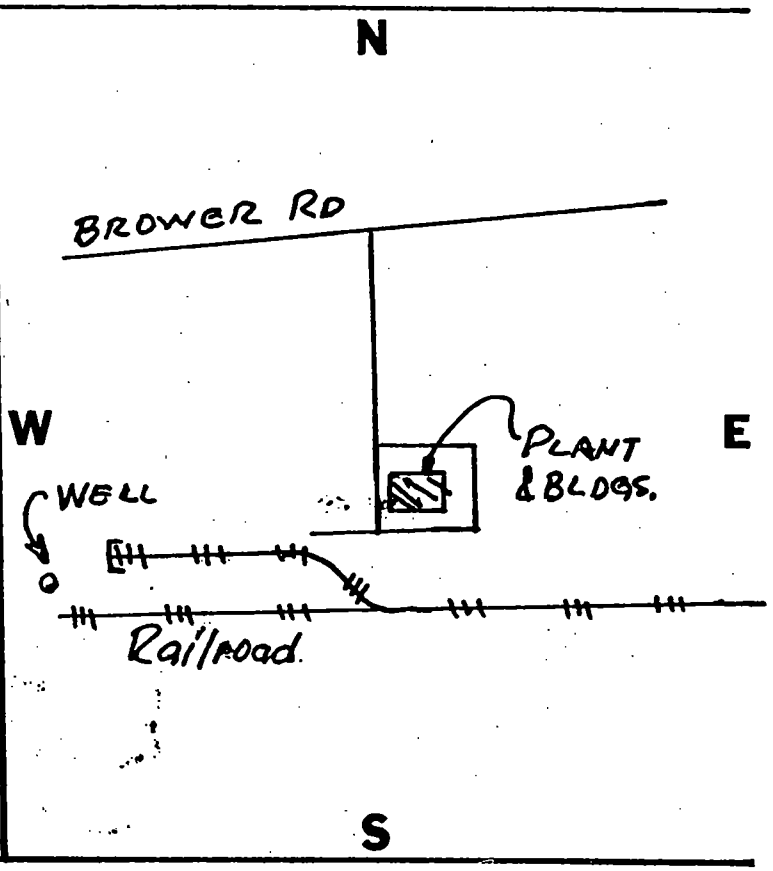
Test rate 617 gpm Duration of test 6 hrs
Drawdown 15'7" ft Date 4-11-77
Static level (depth to water) 42'5" ft
Quality (clear, cloudy, taste, odor) Good
Pump installed by Moody's of Dayton, Inc.

WELL # 37 **WELL LOG***

Formations: sandstone, shale, limestone, gravel, clay	From	To
Broken Concrete Fill	0 ft	4 ft
Clay	4	12
Coarse Gravel & Sand	12	25
Medium Gravel & Sand	25	50
Clay	50	65
Gravel, Sand & Clay	65	80
Medium Gravel	80	124

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



DRILLING FIRM MOODY'S OF DAYTON, INC. DATE 22 April '77
ADDRESS P.O. BOX 123, 4358 INFIRMARY RD., MIAMISBURG, OHIO 45342 SIGNED Charlie Bucks IS

*If additional space is needed to complete well log, use next consecutive numbered form.

WELL LOG 2
ORIGINAL

WEL' LOG AND DRILLING REP^RT

NO CARBON PAPER NECESSARY- SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Geological Survey
Fountain Square
Columbus, Ohio 43224 Phone (614) 466-5344

472209

COUNTY Hamilton TOWNSHIP Miami SECTION OF TOWNSHIP OR LOT NUMBER

OWNER Cincinnati Gas & Electric Co. ADDRESS P.O. Box 960, Cincinnati, Oh. 45201

LOCATION OF PROPERTY 5 miles west of North Bend, Oh. along Ohio River

CONSTRUCTION DETAILS

Casing diameter 8" Length of casing 113'
Type of screen Johnson S.S. Length of screen 21'1"
Type of pump ---
Capacity of pump ---
Depth of pump setting ---
Date of completion Dec. 20, 1974

BAILING OR PUMPING TEST
(specify one by circling)

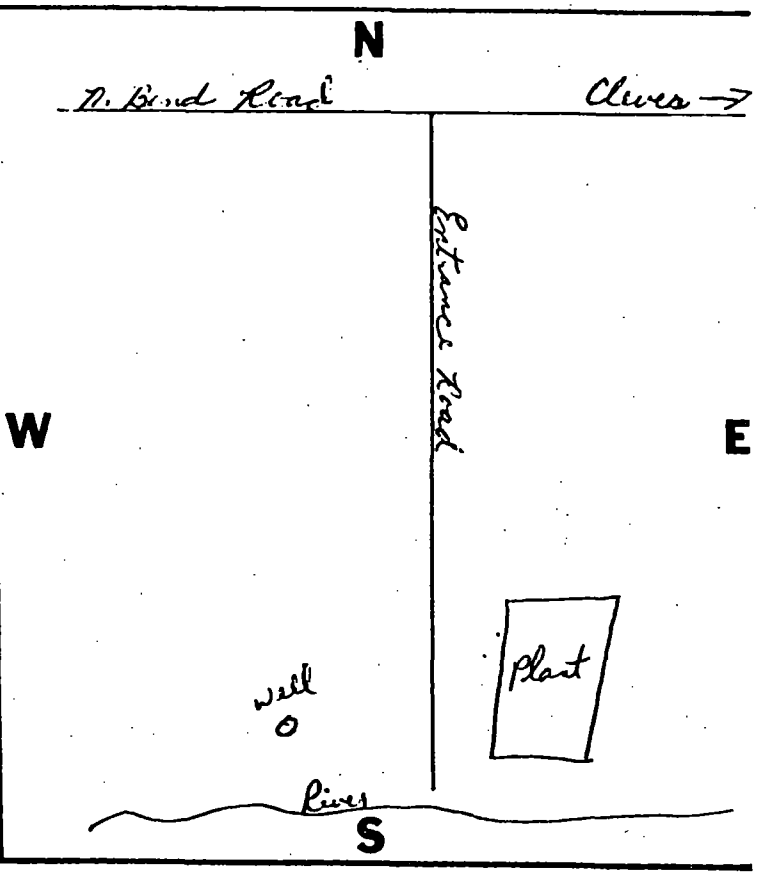
Test rate 120 gpm Duration of test 10 hrs
Drawdown 2'6" ft Date Dec. 1974
Static level (depth to water) 44' ft
Quality (clear, cloudy, taste, odor) Clear
Pump installed by ---

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
Cinders	0 ft	2 ft
Cliff Clay	2	39
Sand, Gravel & Clay	39	75
Medium Gravel & Sand	75	113

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



DRILLING FIRM MOODY'S OF DAYTON, INC. DATE DECEMBER 30, 1975
ADDRESS P.O. BOX 123, MIAMISBURG, OHIO 45342 SIGNED Roger F. Rogers, Jr.

*If additional space is needed to complete well log, use next consecutive numbered form.

Appendix F

AREA Soil Borings

WELL LOG AND DRILLING REPORT

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1500 Dublin Road
Columbus, Ohio

No. 179978

County Hamilton Township Miami Section of Township

Owner E. I. DuPont de Nemours & Co. Address Ft. Hill Plant, North Bend, Ohio

Location of property

CONSTRUCTION DETAILS

Casing diameter 5" Length of casing

Type of screen 4" Everdur Length of screen 6 ft.

Type of pump

Capacity of pump

Depth of pump setting

Date of completion

BAILING OR PUMPING TEST

Pumping rate G.P.M. Duration of test hrs.

Drawdown ft. Date

Developed capacity

Static level—depth to water ft.

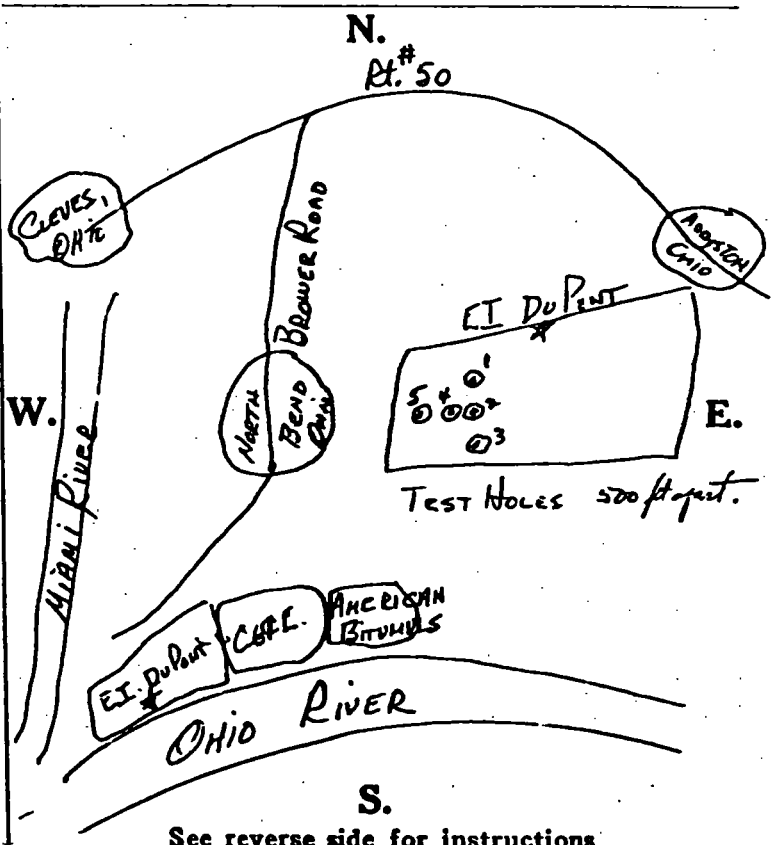
Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
TEST HOLE #1	0 Feet	Ft.
Top Soil	0'	5'
Yellow Clay	5'	10'
Clay, Some Gravel	10'	16'
Coarse Gravel & Boulders	16'	24'
Clay	24'	28'
Sand, Some Gravel	28'	39'
Clay	39'	40'
Fine Dirty Sand, Some Gravel	40'	50'
Dirty Sand	50'	75'
Good Coarse Gravel	75'	79'
Sand and Gravel	79'	85'
Coarse Sand & Gravel	85'	90'
Good Coarse Sand & Gravel	90'	97'
Coarse Gravel, Some Sand	97'	100'
Gravel and Boulders	100'	101'
Rock	101'	103'

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Diehl Pump & Supply Co., Inc Date January 12, 1962

Address 2985 Race Road, Cinti. 11, Ohio Signed Edward B. Wagner Co
Diehl Pump & Supply Co. Inc.

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1500 Dublin Road
Columbus, Ohio

No. 179979

County Hamilton Township Miami Section of Township

Owner E. I. DuPont de Nemours & Co. Address Ft. Hill Plant, North Bend, Ohio

Location of property

CONSTRUCTION DETAILS

Casing diameter 5" Length of casing

Type of screen - Length of screen -

Type of pump —

Capacity of pump

Depth of pump setting

Date of completion 11-15-61

BAILING OR PUMPING TEST

Pumping rate G.P.M. Duration of test hrs.

Drawdown ft. Date

Developed capacity

Static level—depth to water ft.

Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
TEST HOLE #2	0 Feet	Ft.
Top Soil & Clay	0'	15'
Yellow Clay	15'	20'
Clay	20'	25'
Coarse Dirty Gravel	25'	30'
Coarse Gravel	30'	38'
Clay	38'	41'
Sandy Clay & Gravel	41'	45'
Sand	45'	50'
Coarse Sand	50'	58'
Coarse Sand, Some Gravel	68'	75'
Coarse Sand	75'	80'
Good Coarse Sand & Gravel	80'	85'
Coarse Sand and Gravel	85'	90'
Good Coarse Gravel & Sand	90'	98½'
Rock	98½'	100½'

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

N.

W. Refer Lg 179978 E.

S.

See reverse side for instructions

Drilling Firm Diehl Pump & Supply Co. Date January 12, 1962

Address 3985 Race Rd., Cinti. 11, Ohio Signed Edward B. Wagner 65

Diehl Pump & Supply Co. Inc.

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1500 Dublin Road
Columbus, Ohio

No. 179980

County Hamilton Township Miami Section of Township

Owner E. I. duPont Denemours & Co. Address Ft. Hill Plant, North Bend, Ohio

Location of property

CONSTRUCTION DETAILS

Casing diameter 5" Length of casing

Type of screen 4" Everdur Length of screen 6 ft.

Type of pump —

Capacity of pump

Depth of pump setting

Date of completion 11-24-61

BAILING OR PUMPING TEST

Pumping rate G.P.M. Duration of test hrs.

Drawdown ft. Date

Developed capacity

Static level—depth to water ft.

Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
TEST HOLE #3	0 Feet	Ft.
Yellow Clay	0'	25'
Yellow Sandy Clay	25'	32'
Blue Clay	32'	33'
Coarse Gravel & Sand	33'	42'
Coarse Sand, Some Gravel	42'	47'
Fine Sand	47'	58'
Coarse Sand, No Gravel	58'	63'
Sand	63'	74'
Coarse Sand	74'	78'
Good Coarse Sand & Gravel	78'	85'
Coarse Sand, Some Gravel	85'	90'
Coarse Sand	90'	95'
Good Sand & Gravel	95'	105'
Coarse Gravel & Lime Boulders	105'	107½'
Soapstone Rock	107½'	109½'

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads. etc.

N.

W. Refer Log 179978 E.

S.

See reverse side for instructions

Drilling Firm Diehl Pump & Supply Co.

Address 3985 Race Rd., Cinti. 11, Ohio

Date January 12, 1962

Signed Edward B. Wagner 64

Diehl Pump & Supply Co., Inc.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1500 Dublin Road
Columbus, Ohio

No. 179981

County Hamilton Township Miami Section of Township

Owner E. I. DuPont de Nemours & Co. Address Ft. Hill Plant, North Bend, Ohio

Location of property

CONSTRUCTION DETAILS

Casing diameter 5" Length of casing

Type of screen - Length of screen -

Type of pump -

Capacity of pump

Depth of pump setting

Date of completion 11-17-61

BAILING OR PUMPING TEST

Pumping rate G.P.M. Duration of test hrs.

Drawdown ft. Date

Developed capacity

Static level—depth to water ft.

Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
TEST HOLE #4	0 Feet	Ft.
Top Soil	0'	3'
Yellow Clay	3'	15'
Coarse Gravel	15'	20'
Coarse Dirty Gravel	20'	30'
CoarseSand & Gravel	30'	32'
Fine Sand	32'	36'
Blue Clay	36'	38'
Fine Sand	38'	51'
Sand, Coarse	51'	55'
Coarse Sand, Some Gravel	55'	60'
Sand and Some Gravel	60'	63'
Sand and Some Gravel	63'	73'
Good Gravel, Some Sand	73'	87'
Sand, Gravel & Boulders	87'	90'
Rock	90'	92'

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

N.

W. Ref Lg 179978 E.

S.

See reverse side for instructions

Drilling Firm Diehl Pump & Supply Co.

Address 3985 Race Rd., Cinti. 11, Ohio

Date January 12, 1962

Signed Edward B. Wagner 63

Diehl Pump & Supply Co. Inc.

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1500 Dublin Road
Columbus, Ohio

No. 179982

County Hamilton Township Miami Section of Township

Owner E. I. DuPont de Nemours & Co. Address Ft. Hill Plant, North Bend, Ohio

Location of property

CONSTRUCTION DETAILS

Casing diameter 5" Length of casing

Type of screen 4" Everdur Length of screen 6 ft.

Type of pump —

Capacity of pump

Depth of pump setting

Date of completion 11-21-61

BAILING OR PUMPING TEST

Pumping rate G.P.M. Duration of test hrs.

Drawdown ft. Date

Developed capacity

Static level—depth to water ft.

Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
TEST HOLE #5	0 Feet	Ft.
Top Soil, Clay	0'	15'
Blue Clay	15'	35'
Good Coarse Gravel & Sand	35'	52'
Sand	52'	62'
Coarse Sand	62'	68'
Good Coarse Gravel & Sand	68'	76'
Coarse Sand & Gravel	76'	87'
Rock	87'	89'

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

N.

W. Refer Log 179978 E.

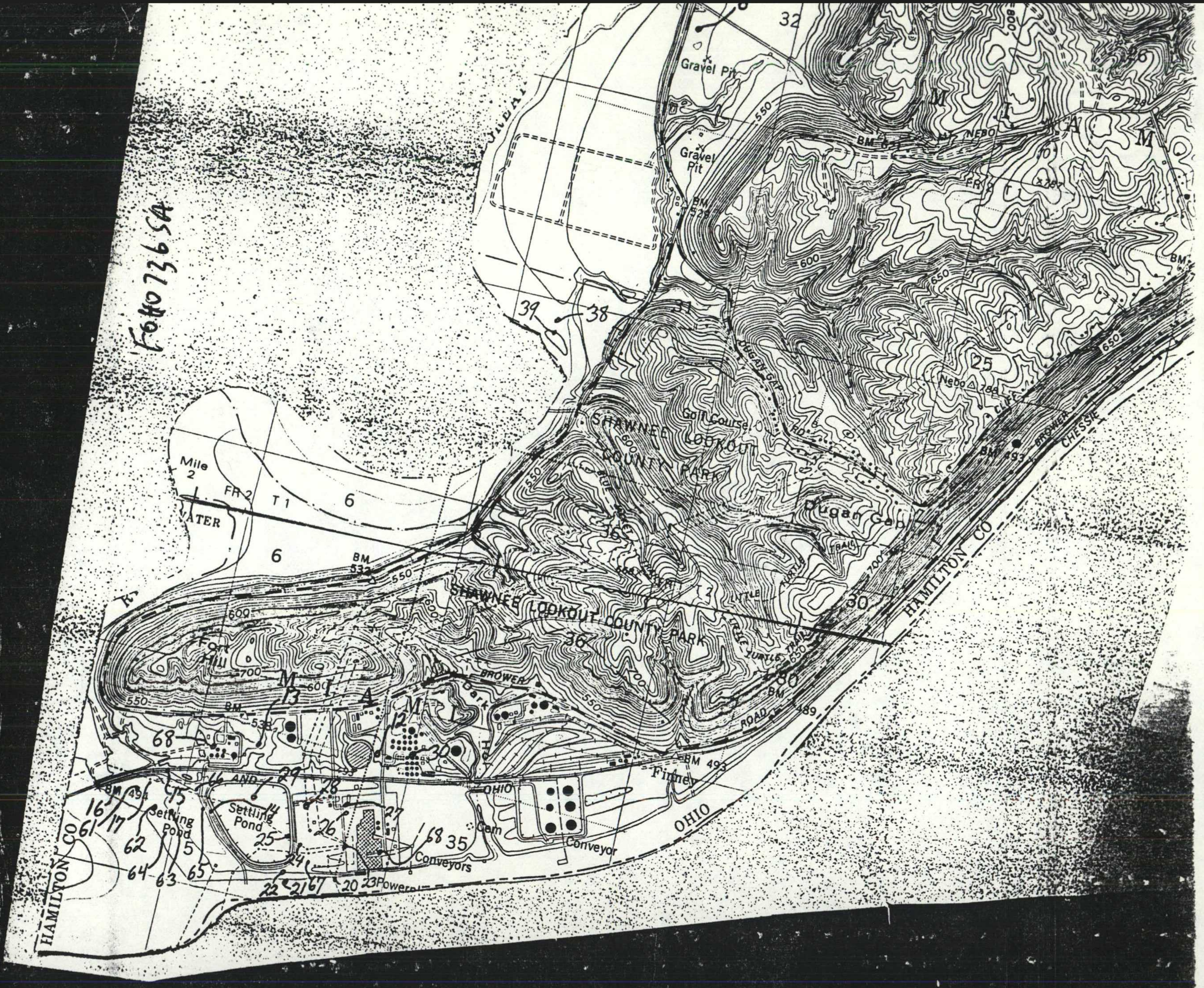
S.

See reverse side for instructions

Drilling Firm Diehl Pump & Supply Co. Date January 12, 1962

Address 3985 Race Rd., Cinti. 11, Ohio Signed Edward F. Wagner 62

Diehl Pump & Supply Co., Inc.


F040726SA
Gravel Pit
Gravel Pit
SHAWNEE LOOKOUT COUNTY PARK
SHAWNEE LOOKOUT COUNTY PARK
Golf Course
Dugan Gap
Fort Hill
Mile 2
HAMILTON CO
HAMILTON CO
OHIO
Settling Pond
Settling Pond
Conveyors
Conveyor
Cem
BROWER
Fitney
Power

County Permit No. _____

NO CARBON PAPER NECESSARY– SELF-TRANSCRIBING

WELL LOG AND DRILLING REPORT

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Fountain Square
Columbus, Ohio 43224

547503

COUNTY Hamilton TOWNSHIP Miami SECTION OF TOWNSHIP _____

OWNER E. I. DuPont de Nemours & Company ADDRESS North Bend, Ohio

LOCATION OF PROPERTY 4½ miles down river from North Bend on Brower Road

CONSTRUCTION DETAILS

Casing diameter 20" Length of casing 105'9½"

Type of screen s.s.-P.S. Cook Length of screen 26'8½"

Type of pump vertical turbine water lube

Capacity of pump 760 gpm

Depth of pump setting 110'

Date of completion 3-30-79

BAILING OR PUMPING TEST
(specify one by circling)

Test rate 760 gpm Duration of test _____ hrs

Drawdown 34 ft Date April 3, 1979

Static level (depth to water) 44' (from top of casing) ft

Quality (clear, cloudy, taste, odor) clear.

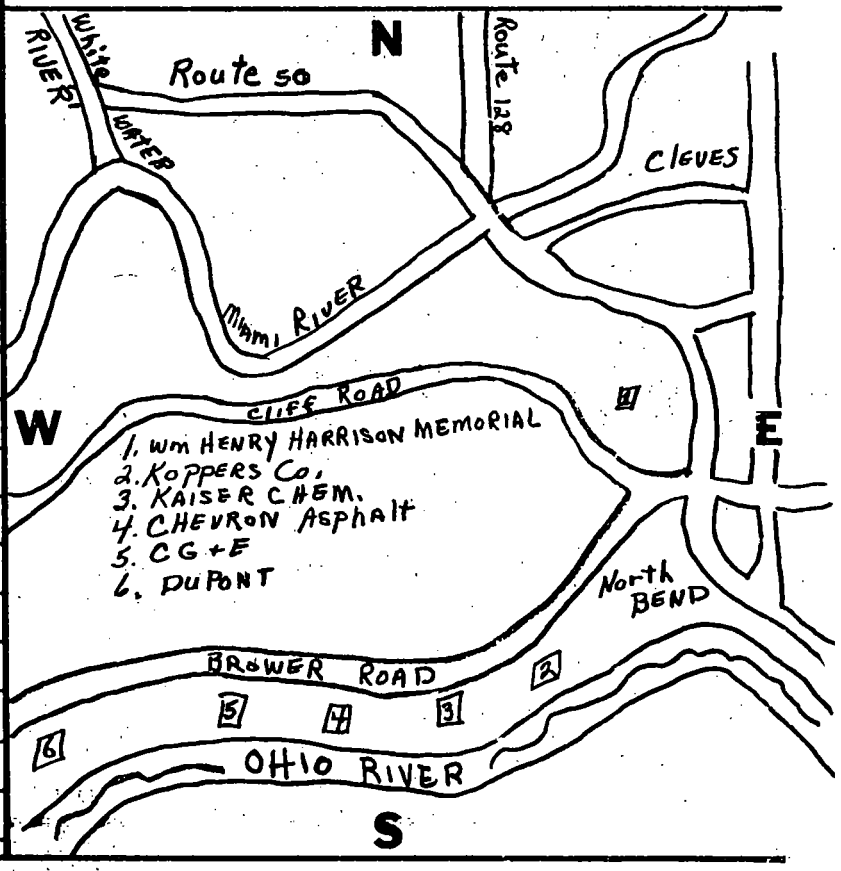
Pump installed by Moody's of Dayton (E. Wheeler)

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
Hard dense clay	0 ft	4 ft
Sand & gravel	4	10
Coarse sand, med. gravel, some 5-6" boulders	10	43
Smooth yellow clay	43	86
Med. sand with small to med gravel	86	89
Grey sandy clay	89	91
Rough buried river bank vegitation with wood & coal	91	93
Sand & gravel with clay	93	96
Med. to coarse sand, small to coarse gravel, some 5-6" boulders	96	115
Coarse sand, large blue gravel	115	131
Blue shale	131	132

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads; etc.



DRILLING FIRM Moody's of Dayton, Inc. DATE April 3, 1979

ADDRESS 4359 Infirmary Rd., P.O. Box 123
Miamisburg, Ohio 45342

SIGNED William R. Bastin jd
William R. Bastin

*If additional space is needed to complete well log, use next consecutive numbered form.

WELL LOG AND DRILLING REPORT

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1500 Dublin Road
Columbus, Ohio

No. 179982

County Hamilton Township Miami Section of Township

Owner E. I. DuPont de Nemours & Co. Address Ft. Hill Plant, North Bend, Ohio

Location of property

CONSTRUCTION DETAILS

Casing diameter 5" Length of casing

Type of screen 4" Everdur Length of screen 6 ft.

Type of pump —

Capacity of pump

Depth of pump setting

Date of completion 11-21-61

BAILING OR PUMPING TEST

Pumping rate G.P.M. Duration of test hrs.

Drawdown ft. Date

Developed capacity

Static level—depth to water ft.

Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
TEST HOLE #5	0 Feet	Ft.
Top Soil, Clay	0'	15'
Blue Clay	15'	35'
Good Coarse Gravel & Sand	35'	52'
Sand	52'	62'
Coarse Sand	62'	68'
Good Coarse Gravel & Sand	68'	76'
Coarse Sand & Gravel	76'	87'
Rock	87'	89'

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

N.

W. Refer Log 179978 E.

S.

See reverse side for instructions

Drilling Firm Diehl Pump & Supply Co. Date January 12, 1962

Address 3985 Race Rd., Cinti. 11, Ohio Signed Edward E. Wagner 62

Diehl Pump & Supply Co., Inc.

WELL LOG AND DRILLING REPORT

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1500 Dublin Road
Columbus, Ohio

No. 179981

County Hamilton Township Miami Section of Township

Owner E. I. DuPont de Nemours & Co. Address Ft. Hill Plant, North Bend, Ohio

Location of property

CONSTRUCTION DETAILS

Casing diameter 5" Length of casing

Type of screen - Length of screen -

Type of pump -

Capacity of pump

Depth of pump setting

Date of completion 11-17-61

BAILING OR PUMPING TEST

Pumping rate G.P.M. Duration of test hrs.

Drawdown ft. Date

Developed capacity

Static level—depth to water ft.

Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
TEST HOLE #4	0 Feet	Ft.
Top Soil	0'	3'
Yellow Clay	3'	15'
Coarse Gravel	15'	20'
Coarse Dirty Gravel	20'	30'
CoarseSand & Gravel	30'	32'
Fine Sand	32'	36'
Blue Clay	36'	38'
Fine Sand	38'	51'
Sand, Coarse	51'	55'
Coarse Sand, Some Gravel	55'	60'
Sand and Some Gravel	60'	63'
Sand and Some Gravel	63'	73'
Good Gravel, Some Sand	73'	87'
Sand, Gravel & Boulders	87'	90'
Rock	90'	92'

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

N.

W. Ref Lg 179978 E.

S.

See reverse side for instructions

Drilling Firm Diehl Pump & Supply Co. Date January 12, 1962

Address 3985 Race Rd., Cinti. 11, Ohio Signed Edward B. Wagner 63

Diehl Pump & Supply Co. Inc.

WELL LOG AND DRILLING REPORT

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1500 Dublin Road
Columbus, Ohio

No. 179980

County Hamilton Township Miami Section of Township

Owner E. I. duPont Denemours & Co. Address Ft. Hill Plant, North Bend, Ohio

Location of property

CONSTRUCTION DETAILS

Casing diameter 5" Length of casing

Type of screen 4" Everdur Length of screen 6 ft.

Type of pump —

Capacity of pump

Depth of pump setting

Date of completion 11-24-61

BAILING OR PUMPING TEST

Pumping rate G.P.M. Duration of test hrs.

Drawdown ft. Date

Developed capacity

Static level—depth to water ft.

Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
TEST HOLE #3	0 Feet	Ft.
Yellow Clay	0'	25'
Yellow Sandy Clay	25'	32'
Blue Clay	32'	33'
Coarse Gravel & Sand	33'	42'
Coarse Sand, Some Gravel	42'	47'
Fine Sand	47'	58'
Coarse Sand, No Gravel	58'	63'
Sand	63'	74'
Coarse Sand	74'	78'
Good Coarse Sand & Gravel	78'	85'
Coarse Sand, Some Gravel	85'	90'
Coarse Sand	90'	95'
Good Sand & Gravel	95'	105'
Coarse Gravel & Lime Boulders	105'	107½'
Soapstone Rock	107½'	109½'

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

N.

W. Refer Log 179978 E.

S.

See reverse side for instructions

Drilling Firm Diehl Pump & Supply Co.

Address 3985 Race Rd., Cinti. 11, Ohio

Date January 12, 1962

Signed Edward B. Wagner

Diehl Pump & Supply Co., Inc.

WELL LOG AND DRILLING REPORT

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1500 Dublin Road
Columbus, Ohio

No. 179979

County Hamilton Township Miami Section of Township

Owner E. I. DuPont de Nemours & Co. Address Ft. Hill Plant, North Bend, Ohio

Location of property

CONSTRUCTION DETAILS

Casing diameter 5" Length of casing

Type of screen - Length of screen -

Type of pump —

Capacity of pump

Depth of pump setting

Date of completion 11-15-61

BAILING OR PUMPING TEST

Pumping rate G.P.M. Duration of test hrs.

Drawdown ft. Date

Developed capacity

Static level—depth to water ft.

Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
TEST HOLE #2	0 Feet	Ft.
Top Soil & Clay	0'	15'
Yellow Clay	15'	20'
Clay	20'	25'
Coarse Dirty Gravel	25'	30'
Coarse Gravel	30'	38'
Clay	38'	41'
Sandy Clay & Gravel	41'	45'
Sand	45'	50'
Coarse Sand	50'	58'
Coarse Sand, Some Gravel	68'	75'
Coarse Sand	75'	80'
Good Coarse Sand & Gravel	80'	85'
Coarse Sand and Gravel	85'	90'
Good Coarse Gravel & Sand	90'	98½'
Rock	98½'	100½'

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

N.

W. Refer Log 179978 E.

S.

See reverse side for instructions

Drilling Firm Diehl Pump & Supply Co.

Address 3985 Race Rd., Cinti. 11, Ohio

Date January 12, 1962

Signed Edward B. Wagner 65

Diehl Pump & Supply Co. Inc.

WELL LOG AND DRILLING REPORT

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1500 Dublin Road
Columbus, Ohio

No. 179978

County Hamilton Township Miami Section of Township

Owner E. I. DuPont de Nemours & Co. Address Ft. Hill Plant, North Bend, Ohio

Location of property

CONSTRUCTION DETAILS

Casing diameter 5" Length of casing

Type of screen 4" Everdur Length of screen 6 ft.

Type of pump

Capacity of pump

Depth of pump setting

Date of completion

BAILING OR PUMPING TEST

Pumping rate G.P.M. Duration of test hrs.

Drawdown ft. Date

Developed capacity

Static level—depth to water ft.

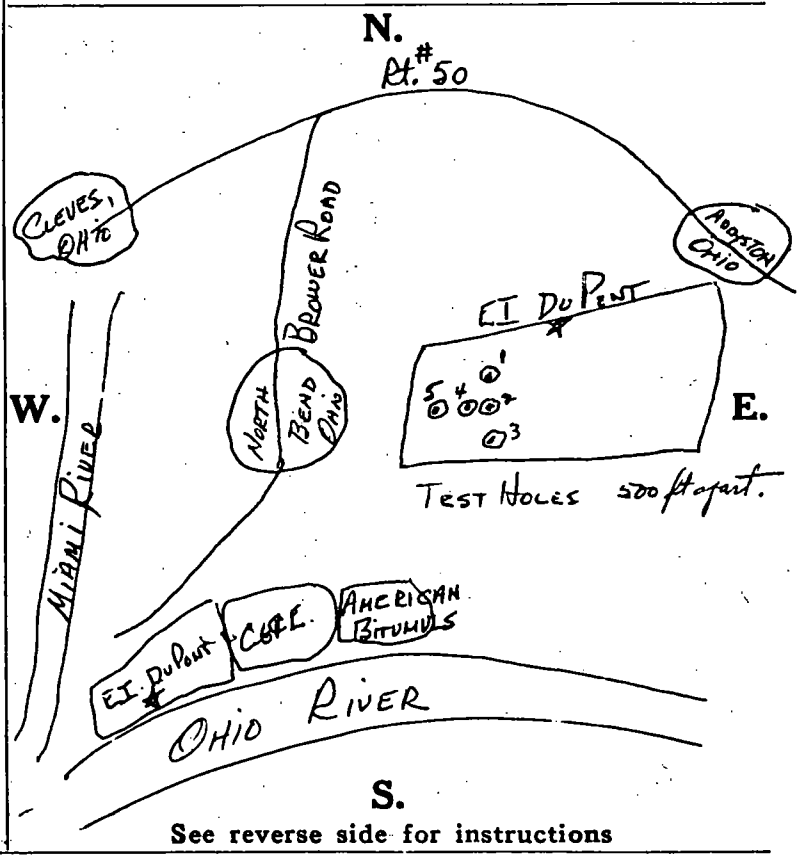
Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
TEST HOLE #1	0 Feet	Ft.
Top Soil	0'	5'
Yellow Clay	5'	10'
Clay, Some Gravel	10'	16'
Coarse Gravel & Boulders	16'	24'
Clay	24'	28'
Sand, Some Gravel	28'	39'
Clay	39'	40'
Fine Dirty Sand, Some Gravel	40'	50'
Dirty Sand	50'	75'
Good Coarse Gravel	75'	79'
Sand and Gravel	79'	85'
Coarse Sand & Gravel	85'	90'
Good Coarse Sand & Gravel	90'	97'
Coarse Gravel, Some Sand	97'	100'
Gravel and Boulders	100'	101'
Rock	101'	103'

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Diehl Pump & Supply Co., Inc. Date January 12, 1962

Address 2985 Race Road, Cinti. 11, Ohio Signed Edward B. Wagner Co

Diehl Pump & Supply Co. Inc.

OHIO WATER SUPPLY BOARD

Well Record No. 1:4

Co. Hamilton 31 Twp. Miami Sec.
Well Location West of Plant Size 26"
Map Lawrenceburg

Owner Cinn. Gas & Elec. Co. Address Columbia Sta.
Driller Layne-Ohio Date 9-'37

Well Head Elev. or M. P.
Elev. of Ground at Well

Pumping Test: 1500 GPM Pumping Level 50'

Static Level 36' Date
Normal Pumpage 1000 GPM

Quality Use

Adequacy of supply

Owner's Well No. or Other Designation 2A Replacement

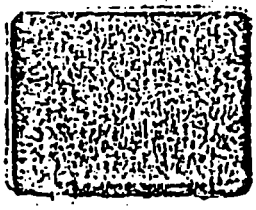
Source of Data Layne-Ohio
Collected by Ramsey Date 8/18/42

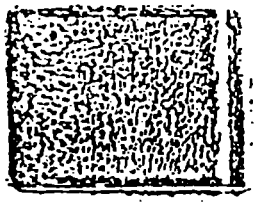
STRATA	DEPTH From	To
Top Soil	0	
Wet Sandy Clay	6	
Clay & Hardpan	42	
Coarse Sand	54	
Boulders	108	
Rock	110	

55

X 1,347,900
Y 411,400

* Chief Aquifer





Deepwell # 2A
"ABANDONDED" [illegible]
NO LONGER IN SERVICE

Miami Fort Station
Cinti Gas & Electric
Brower Road
Near North Bend, Oh

460
110
350

NTA-2

21

OHIO WATER RESOURCES BOARD

Well Record No. 468

Co. Hamilton Twp. Miami Sec. 31 — 18
Well Location ..... Size 26" & 38"
..... Map Lawrenceburg

Owner Cincinnati Gas & Elec. Co Address Columbia Park, Ohio
Driller Layne ..... Date 7/18/48

Well Head Elev. or M. P. .....
Elev. of Ground at Well .....

Pumping Test: 7/16/48 14 ft. D.D. 4 / 1000

Static Level 55 ft. Date 7/18/48
Normal Pumpage .....

Quality ..... Use .....

Adequacy of supply .....
.....

Owner's Well No. or Other Designation 4
.....

Source of Data Layne
Collected by ..... Date Jan. 1949

STRATA	DEPTH From
Yellow clay	0
Sand, clay & boulders	
Dry gravel	
Sand (water)	
Sand & boulders	
Gravel	
G	
SIZE: 26" X 98'	
SIZE: 38" X 79½'	
Screen: 26" X 25'	
Capacity: 1000 G.P.M.	
x 1,347,900	
y 414,000	

* Chief Aquifer

DEEPWELL #4
(ABANDONED, NO LONGER IN SERVICE)

Miami Fort Station
Cinti. Gas & Electric
Brower Road
Near North Bend, OH

458
21
DTA 7-29-80

WEI' LOG AND DRILLING RE'ORT

ORIGINAL

NO CARBON PAPER NECESSARY— SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
65 S. Front St., Rm. 815 Phone (614) 469-2646
Columbus, Ohio 43215

450817

County Hamilton Township Miami Section of Township

Owner Cincinnati Gas & Electric Address Miami Fort Station North Bend, Ohio

Location of property

CONSTRUCTION DETAILS

Casing diameter 26"x35" Length of casing 99'
Type of screen Louvre Shutter Length of screen 30'
Type of pump Vertical Hollow Shaft
Capacity of pump
Depth of pump setting
Date of completion 1-24-74

BAILING OR PUMPING TEST
(Specify one by circling)

Test Rate 1016 G.P.M. Duration of test hrs.
Drawdown 11 ft. Date
Static level-depth to water 39 ft.
Quality (clear, cloudy, taste, odor)
Pump installed by

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
Fill	0 Feet	12 Ft.
Yellow Clay	12	50
Yellow Sand	50	116
Limestone, Boulders & Sand	116	120
Limey Shale	120	124

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

N.

W. E.

S.

Drilling Firm Layne Ohio Company Date August 1, 1974
Address Columbus, Ohio Signed S. Couch & M Garrison

*If additional space is needed to complete well log, use next consecutive numbered form.

23

OHIO WATER SUPPLY BOARD

Well Record No. 122

Co. Hamilton 31 Twp. Miami 11 Sec.

Well Location Columbia Power Sta. on Ohio River Size 26" Map Lawrenceburg

Owner Cinn. Gas & Elec. Co. Address Columbia Sta.

Driller Layne-Ohio Date Nov. 1937

Well Head Elev. or M. P.

Elev. of Ground at Well

Pumping Test: 1600 GPM Pumping Level 60'

Static Level 46' Date

Normal Pumpage 1000 GPM

Quality Use

Adequacy of supply

Owner's Well No. or Other Designation 2

Source of Data Layne-Ohio

Collected by Ramsey Date 8/18/42

STRATA	DEPTH From	
Top Soil	0	
Wet Sandy Clay	8	
Clay & Hardpan	40	
Fine & Coarse Sand	58	
Sand & Gravel	105	
Rock		

3

x 1,347,100
y 414,000

* Chief Aquifer

Deep well # 2

(ABANDONED, NO LONGER IN SERVICE)

Miami Fort Station
Cinti Gas & Electric
Brewer Rd.
Near North Bend, OH

485

23

DTA 7-29-83

WEI LOG AND DRILLING REI RT

ORIGINAL

NO CARBON PAPER NECESSARY— SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
65 S. Front St., Rm. 815 Phone (614) 469-2646
Columbus, Ohio 43215

No. 407791

County Hamilton Township Miami Section of Township

Owner Cincinnati Gas & Elect. Co. Address North Bend, Ohio

Location of property Miami Fort Sta. - 30 ft west of No. 3 well

CONSTRUCTION DETAILS

Casing diameter 26" Length of casing 96'6"
Type of screen Layne Shutter Length of screen 30'
Type of pump Layne
Capacity of pump 1000 GPM
Depth of pump setting 90'
Date of completion 9-2-72

BAILING OR PUMPING TEST
(Specify one by circling)

Test Rate 1000 G.P.M. Duration of test 10 hrs.
Drawdown 21 ft. Date
Static level-depth to water 41 ft.
Quality (clear, ~~cloudy, taste, odor~~)
Pump installed by Layne Ohio Co

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
Clay fill	0 Feet	15 Ft.
Yellow clay	15	45
Yellow sand	45	112
Sand & boulders	112	115
Gray clay	115	116
Sand, gravel & boulders	116	125
Gray shale	125	126

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

N.

W. E.

S.

Drilling Firm Layne Ohio Co Date 12-5-72

Address Columbus, Ohio Signed D. L. McEntire
Layne Ohio Co

*If additional space is needed to complete well log, use next consecutive numbered form.

25

OHIO WATER SUPPLY BOARD

Well Record No. 125

Co. Hamilton 31 Twp. Miami 11 Sec.
Well Location Columbia Power Sta. Size 26"
Map Lawrenceburg
Owner Cin. Gas & Elec. Co. Address Cincinnati, O.
Driller Layne-Ohio Date 1937

Well Head Elev. or M. P.
Elev. of Ground at Well

Pumping Test: 1250 GPM 12' Draw down

Static Level Date
Normal Pumpage

Quality Use

Adequacy of supply

Owner's Well No. or Other Designation 3

Source of Data Layne-Ohio
Collected by Ramsey Date 9/2/42

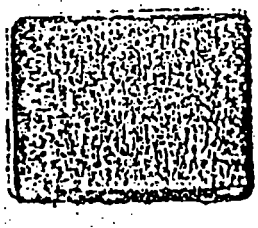
STRATA	DEPTH From
Sandy Surface Soil	0
Sand	20

S

X 1,347,900
Y 414,000.

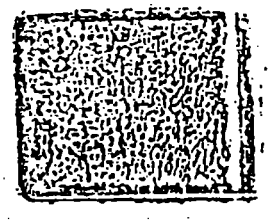
* Chief Aquifer

31



Deepwell #3

(ABANDONED, NO LONGER IN SERVICE)



Miami Fort Station
Cinti Gas & Electric
Brower Rd.
Near North Bend, Olt

PTA
1-29-83

500
114
25

OHIO WATER SUPPLY BOARD

Well Record No. 125

Co. Hamilton Twp. Miami Sec. 31 11

Well Location Above Mouth of Miami Size 18"

R. Map Lawrenceburg

Owner Union Gas & Elec. Co. Columbia Eng'g. & Management Corp Address Columbia Park

Driller Layne Date 11-27-34

Well Head Elev. or M. P.

Elev. of Ground at Well

Pumping Test: 290 gpm — Guarantee 200 gpm — Pump Level 65'

Static Level 58' Date

Normal Pumpage

Quality Use Industrial

Adequacy of supply

Owner's Well No. or Other Designation 1

Source of Data Layne

Collected by Ramsey Date 8-22-42

STRATA	DEPTH From
Clay	0
Sandy Clay	
Sand & Gravel	
Sand	
Sand & Gravel	
Sand	
Sand & Gravel	
" " "	

X 1,347,900
Y 411,400 US
Columbia Park

* Chief Aquifer

Peepwell #1

ABANDONED, NO LONGER IN SERVICE

Miami Fort Station
Cinti Gas & Electric
Brower Road
Near North Bend, OH

49

DTD 7-29-83 26

ORIGINAL

WELL LOG AND DRILLING REPORT

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1500 Dublin Road
Columbus, Ohio

No. 201695
Log 1279

County HAMILTON Township MIAMI Section of Township SW corner Sec 20

Owner CINCINNATI GAS & ELECTRIC Co Address CINCINNATI, O

Location of property Same

CONSTRUCTION DETAILS	BAILING OR PUMPING TEST
Casing diameter ...... Length of casing	Pumping rate ...... G.P.M. Duration of test ...... hrs.
Type of screen ...... Length of screen	Drawdown ...... ft. Date ......
Type of pump	Developed capacity ......
Capacity of pump	Static level—depth to water ...... ft.
Depth of pump setting	Pump installed by ......
Date of completion	

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
	0 Feet	...... Ft.

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

N.

Well is located at Columbia Park Station in Ohio River Valley 200 ft Downstream + 200 ft N of Ohio River

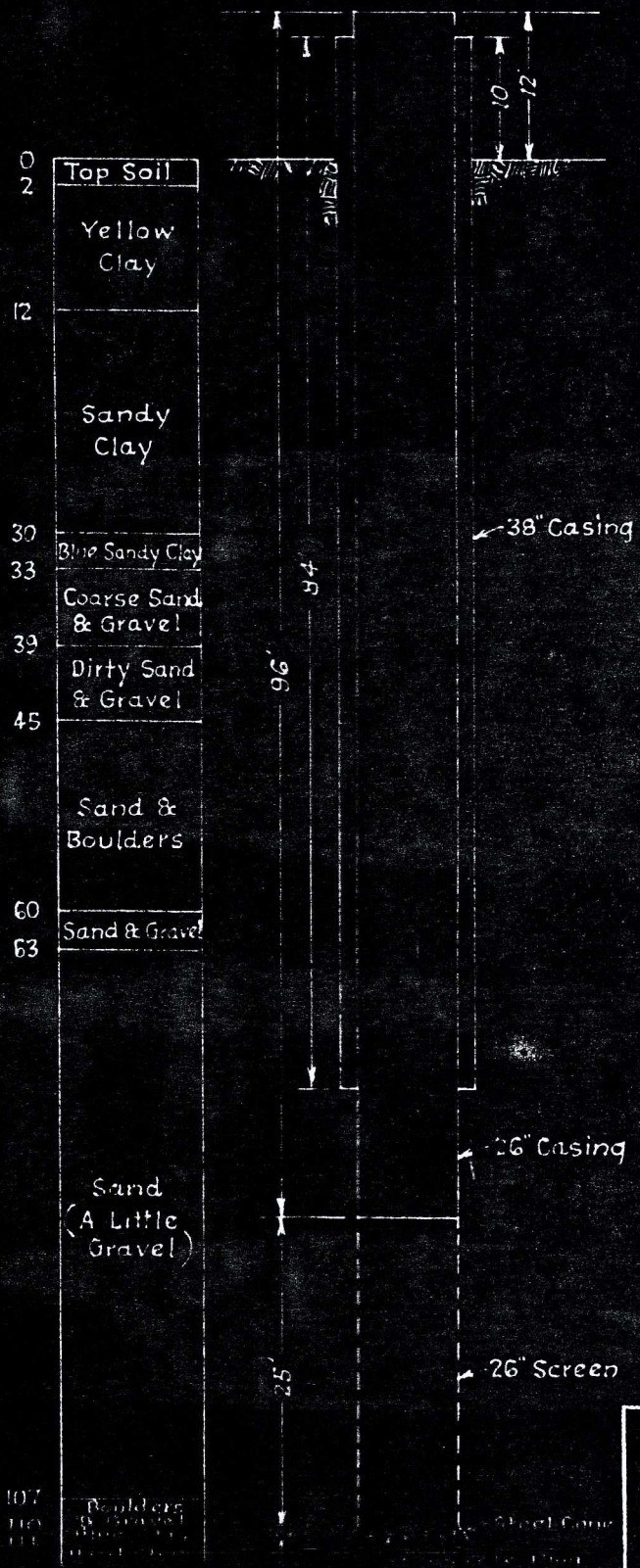
W. E.

S.

See reverse side for instructions

Drilling Firm Layne Ohio Co Date 11-4-57

Address 1100 W Town ST Signed [signature]



MATERIAL:

Pit: 84' of 38"×3/8" Steel Casing & 96' of 26"×3/8" Casing.

Screen: 25' of 26" Stainless Steel Screen.

Cone: 26"×34"×2' Steel Cone.

PUMP:

No.	33048	Shop No.	33048
Type	D. R. H. C.	Size	15"
Setting	100'	Stages	6
Suction	8"×7'-5" Long	Impellers	Bronze
Discharge	8"	Head	
Tubing	3"	Press. B. P.	
Shafting	1 15/16"		

MOTOR:

Make	U. S.	Type	C. F. U.
Volts	2300	Cycle	60
Phase	3	Amp.	
H. P.	100	R. P. M.	1200
Frame	587-P	Serial	

WELL:

Capacity	1000 G. P. M.	Static Level	69'
Guarantee	1000 G. P. M.	P. Level	80'
Started	7-29-55	Pressure	
Finished	9-23-55	Pumped	1000 G. P. M.
Accepted	9-23-55	Depth	111'

REMARKS:

Driller: Reuben Sawyers
Installer: Gerald Hand

THE LAYNE-OHIO CO.
WATER SUPPLY CONTRACTORS
COLUMBUS OHIO

CINCINNATI GAS & ELECTRIC CO.
COLUMBIA PARK - OHIO

DRAWN BY O. L. M.S. APPROVED BY
WELL NO 5 DRAWING NO. 1279

WELL LOG AND DRILLING REPORT

State of Ohio
Department of Natural Resources
Division of Water
~~1960 W. First Avenue~~
Columbus, Ohio

LAYNE # 1279

NO. 201695

County HAMILTON Township MIAMI Section of Township

Owner CINCINNATI GAS & ELECTRIC CO. Address CINCINNATI, O

Location of property COLUMBIA PARK STATION IN OHIO RIVER VALLEY
200 FT NORTH OF OHIO RIVER

CONSTRUCTION DETAILS

Casing diameter 36" Length of casing 84'

Type of screen 26" S.S. Length of screen 96' 25'

Type of pump D.R.H.C.

Capacity of pump

Depth of pump setting 100

Date of completion 9-23-55

BAILING OR PUMPING TEST

Pumping rate 1000 G.P.M.

Duration of test - Hrs.

Drawdown 11 ft. Date

Static level - depth to water 69 Ft.

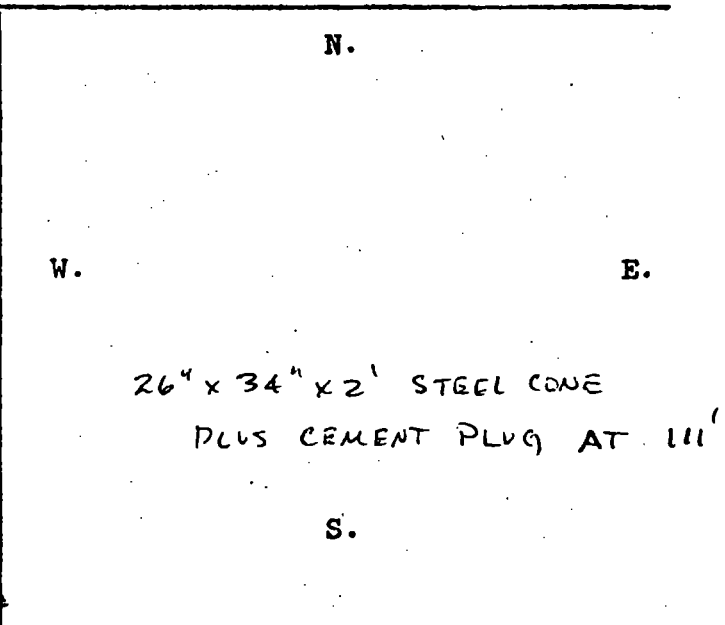
Quality

Pump installed by LAYNE - OHIO

WELL LOG

Formation	From	To
TOP SOIL	0	2
YELLOW CLAY	2	12
SANDY CLAY	12	30
BLUE SANDY CLAY	30	33
COARSE SAND & GRAVEL	33	39
DIRTY SAND & GRAVEL	39	45
SAND & BOULDERS	45	60
SAND & GRAVEL	60	63
SAND (LITTLE GRAVEL)	63	107
BOULDERS & GRAVEL	107	110
BLUE CLAY	110	111
HARD SHALE	111	—

SKETCH SHOWING LOCATION



Drilling Firm LAYNE - OHIO Date 7-29-55

Address COLUMBUS OHIO Copied by J.A.N.

25

OHIO WATER RESOURCES BOARD

Well Record No. 469

31 — 118

Co. Hamilton Twp. Miami Sec.

Well Location Size 18" & 38"

Map Lawrenceburg

Owner Cincinnati Gas & Elec. Co. Address Coulmbia Station

Driller Layne Date 8/12/48

Well Head Elev. or M. P.

Elev. of Ground at Well

Pumping Test: 5 ft. D.D. 200

Static Level 54 ft. Date 8/12/48

Normal Pumpage

Quality Use

Adequacy of supply

Owner's Well No. or Other Designation —

Source of Data Layne

Collected by Date Jan. 1949

STRATA	DEPTH From	To
Yellow clay	0	
Dry dirty gravel		
Dry sand		
Sand & gravel (water)		
Sand, gravel & boulders		
3		
SIZE: 18" X 88'		
SIZE: 38" X 69'		
Screen: 18" X 20'		
Capacity: 200 G.P.M.		
X 1,347,900		
Y 414,000		

* Chief Aquifer

DEEPWELL #5

(ABANDONED, NO LONGER IN SERVICE)

Miami Fort Station
Cinti Gas & Electric
Brower Rd.
Near North Bend, OH

~~DMJ~~

7-29-83

47

28

WEL' LOG AND DRILLING REP RT

ORIGINAL

NO CARBON PAPER NECESSARY– SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Geological Survey
Fountain Square
Columbus, Ohio 43224 Phone (614) 466-5344

472209

COUNTY Hamilton TOWNSHIP Miami SECTION OF TOWNSHIP OR LOT NUMBER

OWNER Cincinnati Gas & Electric Co. ADDRESS P.O. Box 960, Cincinnati, Oh. 45201

LOCATION OF PROPERTY 5 miles west of North Bend, Oh. along Ohio River

CONSTRUCTION DETAILS

Casing diameter 8" Length of casing 113'
Type of screen Johnson S.S. Length of screen 21'1"
Type of pump ---
Capacity of pump ---
Depth of pump setting ---
Date of completion Dec. 20, 1974

BAILING OR PUMPING TEST
(specify one by circling)

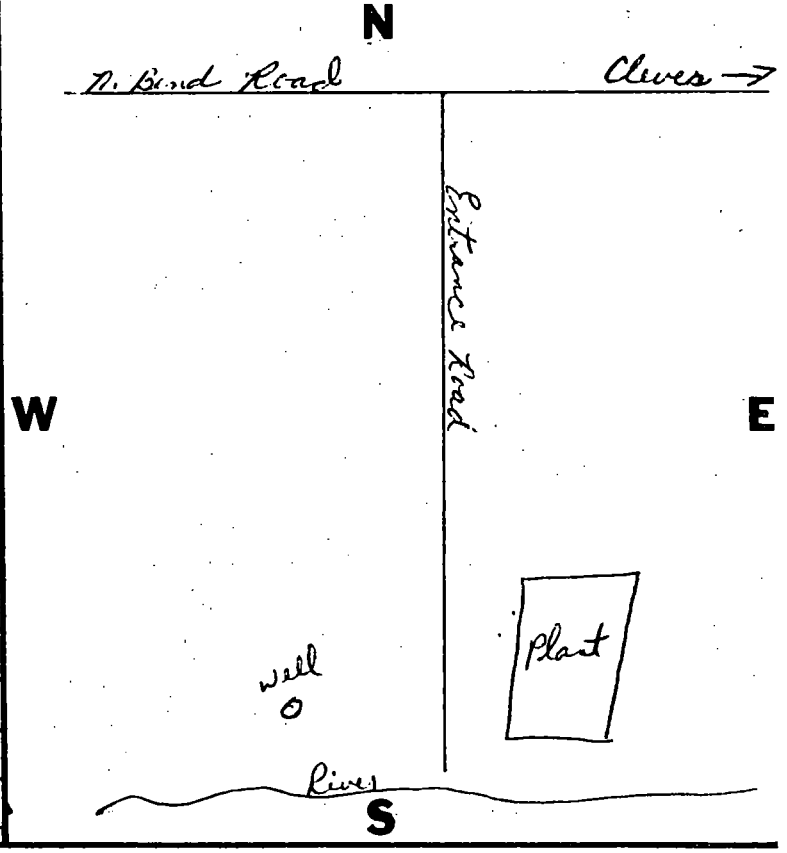
Test rate 120 gpm Duration of test 10 hrs
Drawdown 2'6" ft Date Dec. 1974
Static level (depth to water) 44' ft
Quality (clear, cloudy, taste, odor) Clear
Pump installed by ---

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
Cinders	0 ft	2 ft
Stiff Clay	2	39
Sand, Gravel & Clay	39	75
Medium Gravel & Sand	75	113

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



DRILLING FIRM MOODY'S OF DAYTON, INC. DATE DECEMBER 30, 1975
ADDRESS P.O. BOX 123, MIAMISBURG, OHIO 45342 SIGNED Roger F. Rogers Jr.

*If additional space is needed to complete well log, use next consecutive numbered form.

WELL LOG AND DRILLING REPORT

ORIGINAL

PLEASE USE PENCIL OR TYPEWRITER
DO NOT USE INK.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus, Ohio 43212

No 348946

County HAMILTON Township Miami Section of Township

Owner CHEVRON ASPHALT CO Address BOX 38014 CINCINNATI, O.

Location of property 11001 BROWER ROAD

CONSTRUCTION DETAILS

Casing diameter 16 Length of casing 100'
Type of screen WIRE WOUND Length of screen 20'
Type of pump VERTICAL TURBINE
Capacity of pump 400 GPM
Depth of pump setting 98'-10½"
Date of completion NOV 27, 1972

BAILING OR PUMPING TEST

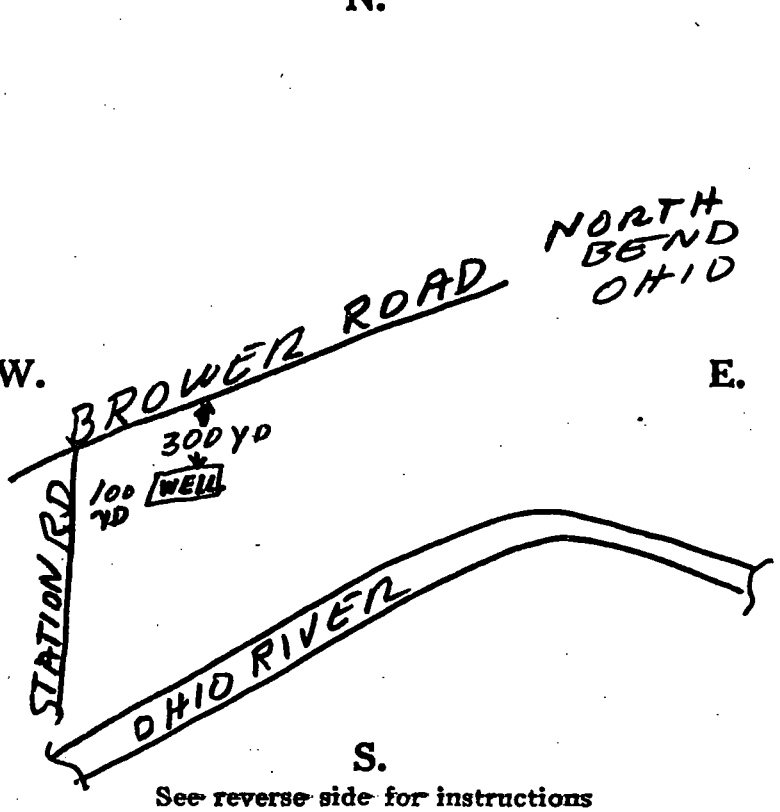
Pumping Rate 454 G.P.M. Duration of test 24 hrs.
Drawdown ? ft. Date 12/14/72
Static level-depth to water 54'-4" ft.
Quality (clear, cloudy, taste, odor) CLEAR - ODORLESS - TASTELESS
Pump installed by DIEHL PUMP

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
ASPHALT	0 Feet	1 Ft.
OVERLAY	1'	50'
BROWN MUD	50'	70'
FINE SAND	70'	85'
FINE SAND SM. GR.	85'	95'
" " MED GR	95'	100'
MED. COARSE SAND	100'	111'
COARSE SAND	111'	120'
BLUE CLAY	120'	

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm DIEHL PUMP Date 12/18/72 30

Address 550 N. WAYNE AVE CINCINNATI, O. 45215 Signed L F Brewer

*If additional space is needed to complete well log, use next consecutive numbered form.

OWNER Chevron Asphalt Co ADDRESS Brower Rd North Bend, OH

LOCATION OF PROPERTY Next to C64E Miami Fort Station

CONSTRUCTION DETAILS

Casing diameter 16" Length of casing 89

Type of screen _____ Length of screen See below

Type of pump Turbine

Capacity of pump 500 gpm

Depth of pump setting 85'

Date of completion 5/21/74

BAILING OR PUMPING TEST
(specify one by circling)

Test rate 1200 gpm Duration of test _____ hrs

Drawdown ? Air ft Date 5/16/74

Static level (depth to water) 42'6 ft

Quality (clear, cloudy, taste, odor) Clear

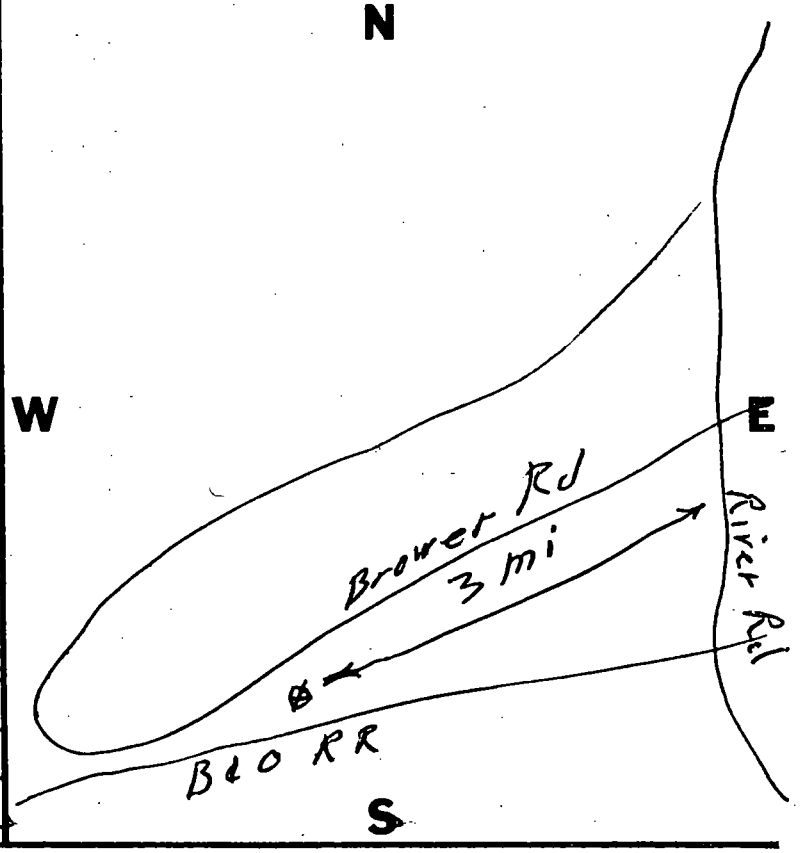
Pump installed by W Crane

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
Dirty sand	0 ft	3 ft
Dirty sand & gravel	3	55
Sand & med gravel	55	80
Med sand & gravel	80	95
Fine sand & med sand & gravel	95	110
Coarse gravel	110	114
Clay & gravel	114	—
Bottomed at 114'		
STRAINER		
25 FT 12" Stainless steel Cook		
Strainer #9 wire with 16" packers as		
follows Top 6'	#60	
Next 7'	#40	
Next 10'	#30	
Bottom 2'	#80	

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.

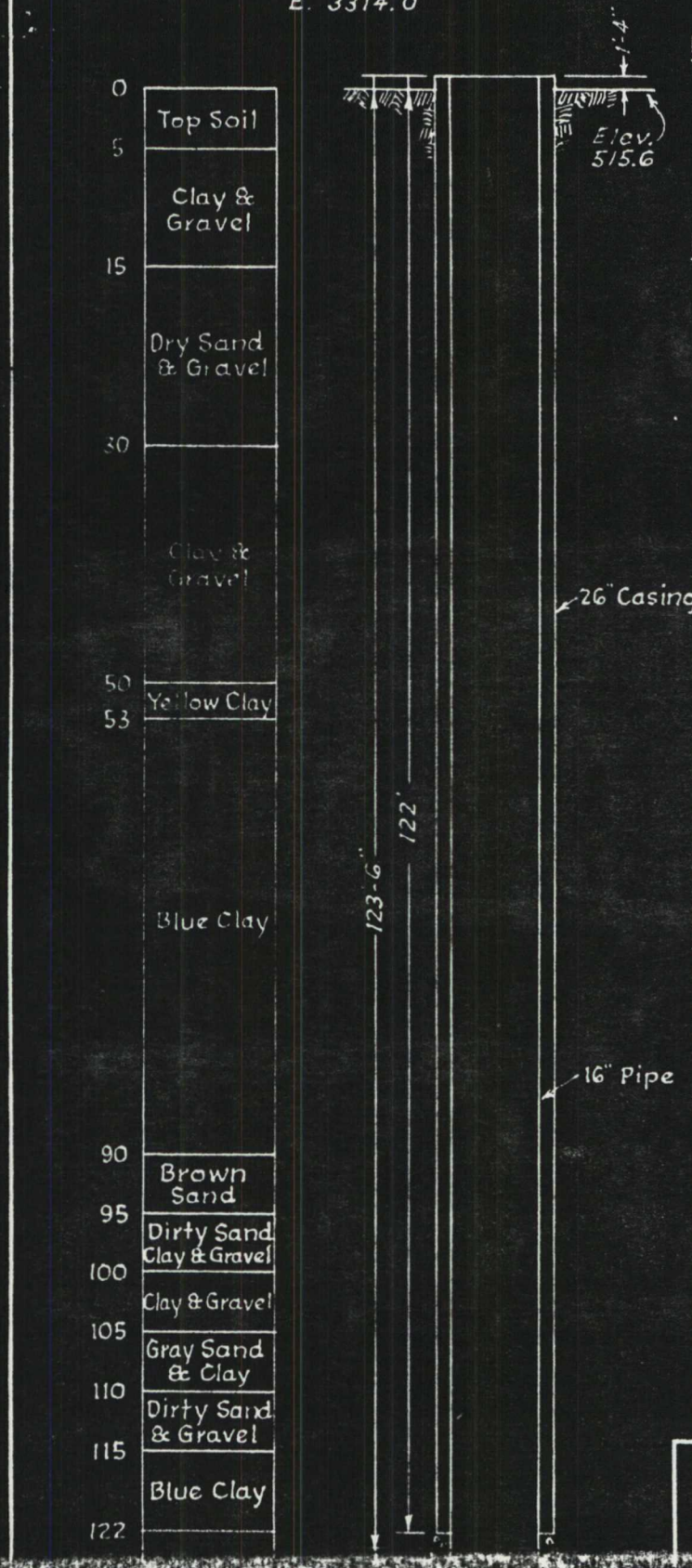


DRILLING FIRM Wm Crane DATE 7/10/74

ADDRESS BOX 33 Shandon, O SIGNED _____

*If additional space is needed to complete well log, use next consecutive numbered form.

Coordinates N. 34[illegible]0
E. 3314.0



MATERIAL:

Pit: 122' of 26" Steel Casing & 123'-6" of 16" Steel Pipe.

Screen: 10'-6" of 16" O.D. Everdur Bronze Cook Screen. with *125 Slots.

Cone: Bronze Plate.

PUMP:

No.	34039	Shop No.	34039
Type	RKHC	Size	10"
Setting	115'	Stages	7
Suction	6" x 5'	Impellers	Bronze
Discharge	6"	Head	
Tubing	None	Press. B. P.	
Shafting	1½"		

MOTOR: Steam Turbine

Make	Coppus-275*Psig.	Type	TFV 20
Volts		Cycle	
Phase		Amp.	
H. P.	50	R. P. M.	1800
Frame		Serial	

WELL:

Capacity	500 G.P.M.*	Static Level	455.6
Guarantee	None	P. Level	405.8
Started	3-8-56	Pressure	
Finished	4-3-56	Pumped	430 G.P.M.
Accepted	4-3-56	Depth	134'

REMARKS:

* Nominal pump capacity & Well capacity variable with ground water level.

Top of pump foundation El. 515.17

Proj. 6396
Fort Hill
Fa. 500
Order GBC-3½

Driller: Toledo Rogers
Installer: Reuben Sawyers

THE LAYNE-OHIO CO.,
WATER SUPPLY CONTRACTORS
COLUMBUS OHIO

WELL LOG AND DRILLING REPORT

NO CARBON PAPER NECESSARY– SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Geological Survey
Fountain Square
Columbus, Ohio 43224 Phone (614) 466-5344

470758

COUNTY Hamilton TOWNSHIP Miami SECTION OF TOWNSHIP OR LOT NUMBER 36

County Permit No. _____

NO CARBON PAPER NECESSARY– SELF-TRANSCRIBING

WELL LOG AND DRILLING REPORT

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Fountain Square
Columbus, Ohio 43224

547528

COUNTY Hamilton TOWNSHIP Miami ? SECTION OF TOWNSHIP _____

OWNER E. I. duPont de Nemours & Company ADDRESS North Bend, Ohio

LOCATION OF PROPERTY East of confluence of Ohio & Great Miami Rivers

CONSTRUCTION DETAILS

Casing diameter 20" Length of casing 68'

Type of screen 36 x 20 gp s.s Length of screen 23'

Type of pump ByronJackson submersible

Capacity of pump 750 GPM @ 350 TDH

Depth of pump setting 70'

Date of completion 10/20/79

BAILING OR PUMPING TEST
(specify one by circling)

Test rate 837 gpm Duration of test 24 hrs

Drawdown 7.5' ft Date 2/7/80

Static level (depth to water) 18'6" ft

Quality (clear, cloudy, taste, odor) clear

Pump installed by Moody's of Dayton

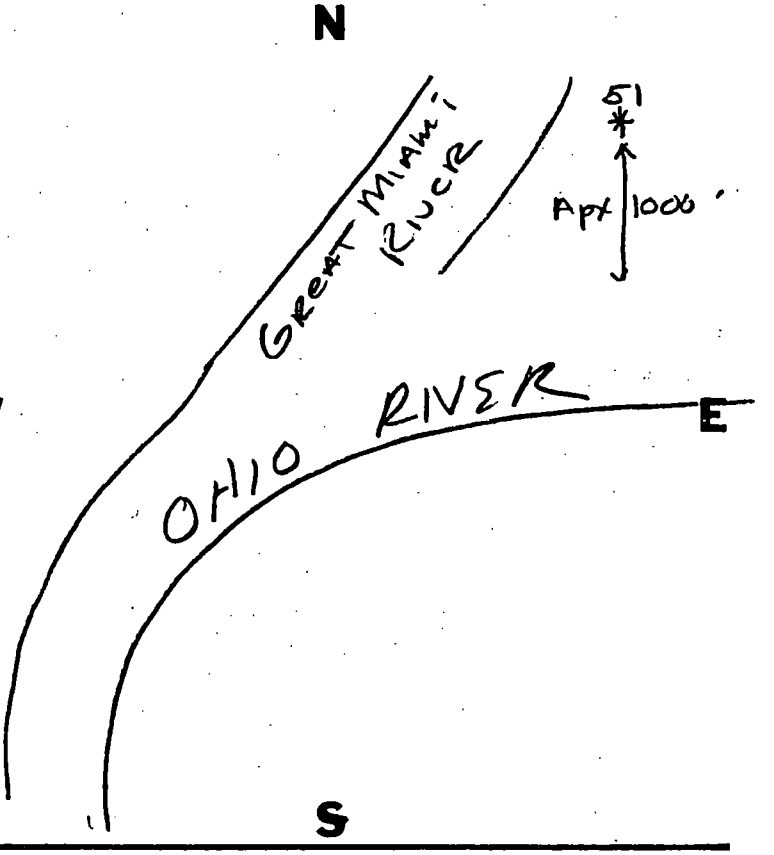
WELL LOG*

WELL # 51

Formations: sandstone, shale, limestone, gravel, clay	From	To
Top soil	0 ft	5 ft
Brown clay	5	15
Brown clay & gravel	15	25
Large gravel	25	35
Small gravel	35	40
Fine sand w/gravel	40	45
Med gravel & fine sand	45	60
Fine sand	60	62
Coal	62	63
Fine sand	63	65
Medium gravel w/boulders	65	90
Shale	90	

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



DRILLING FIRM Moody's of Dayton, Inc.

ADDRESS 4359 Infirmary Rd., PO. Box 123 Miamisburg, Ohio 45342

DATE June 27, 1980

SIGNED _____

*If additional space is needed to complete well log, use next consecutive numbered form.

WELL LOG AND DRILLING REPORT

ORIGIN

PLEASE USE PENCIL OR TYPEWRITER
DO NOT USE INK.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus, Ohio 43212

No 348934

County HAMILTON Township Miami Section of Township SOUTH EAST

Owner E. I. DuPont de Nemours & Co. Address NORTHBEND OHIO

Location of property

CONSTRUCTION DETAILS

Casing diameter 20" Length of casing 80'
Type of screen BRONZE WIRE WOUND Length of screen 16'
Type of pump VERTICAL SUBMERSIBLE
Capacity of pump 750 GPM
Depth of pump setting 80'
Date of completion MAY 1970

BAILING OR PUMPING TEST

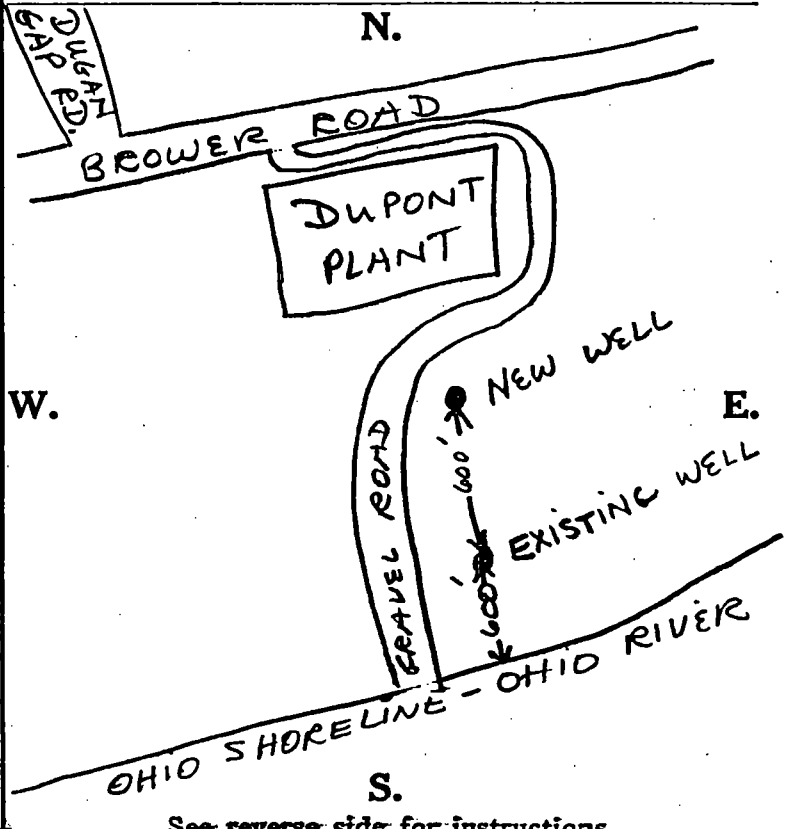
Pumping Rate 1001 G.P.M. Duration of test 24 hrs.
Drawdown 29'-8" ft. Date MAY 8, 1970
Static level-depth to water 22'-10" ft.
Quality (clear, cloudy, taste, odor) CLEAR
Pump installed by DIEHL PUMP & SUPPLY

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
OVERLAY	0 Feet	3 Ft.
DRY BROWN CLAY	3	10
MOIST BROWN CLAY	10	25
BLUE CLAY	25	31
MED. BROWN SAND & GRAVEL	31	47
MED. GRAY & BROWN SAND	47	57
FINE BROWN SAND & GRAVEL	57	70
MED. BROWN SAND & GRAVEL	70	96
GRAY CLAY	96	

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm DIEHL PUMP & SUPPLY CO Date MAY 12, 1970

Address 550 N. WAYNE AVE. CINCINNATI OHIO 45215 Signed C. Diehl

*If additional space is needed to complete well log, use next consecutive numbered form.

County Permit No. _____

NO CARBON PAPER NECESSARY– SELF-TRANSCRIBING

WELL LOG AND DRILLING REPORT

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Fountain Square
Columbus, Ohio 43224

547528

COUNTY Hamilton TOWNSHIP Miami ? SECTION OF TOWNSHIP _____

OWNER E. I. duPont de Nemours & Company ADDRESS North Bend, Ohio

County Permit No. _____

NO CARBON PAPER NECESSARY– SELF-TRANSCRIBING

WELL LOG AND DRILLING REPORT

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Fountain Square
Columbus, Ohio 43224

547529

COUNTY Hamilton TOWNSHIP Miami ? SECTION OF TOWNSHIP _____

OWNER E. I. duPont de Nemours & Company ADDRESS North Bend, Ohio

LOCATION OF PROPERTY East of the confluence of the Ohio & Great Miami Rivers

CONSTRUCTION DETAILS

Casing diameter 20" Length of casing 58'

Type of screen 36 x 20 gp s.s Length of screen 25'

Type of pump Byron Jackson submersible

Capacity of pump 750 GPM @ 350 TDH

Depth of pump setting 70'

Date of completion 3/5/80

BAILING OR PUMPING TEST

(specify one by circling)

Test rate 1000 gpm Duration of test 24 hrs

Drawdown 11' ft Date 5/29/80

Static level (depth to water) 11'5" ft

Quality (clear, cloudy, taste, odor) clear

Pump installed by _____

WELL # 50 WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
Top soil	0 ft	5 ft
Sandy clay	5	25
Grey clay & some gravel	25	30
Grey clay	30	35
Grey clay & med. gravel	35	40
Fine sand & med. gravel	40	60
Coarse gravel	60	70
Coarse gravel & fine sand	70	75
Medium gravel	75	80
Coal seam	80	81
Bedrock	81	85

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.